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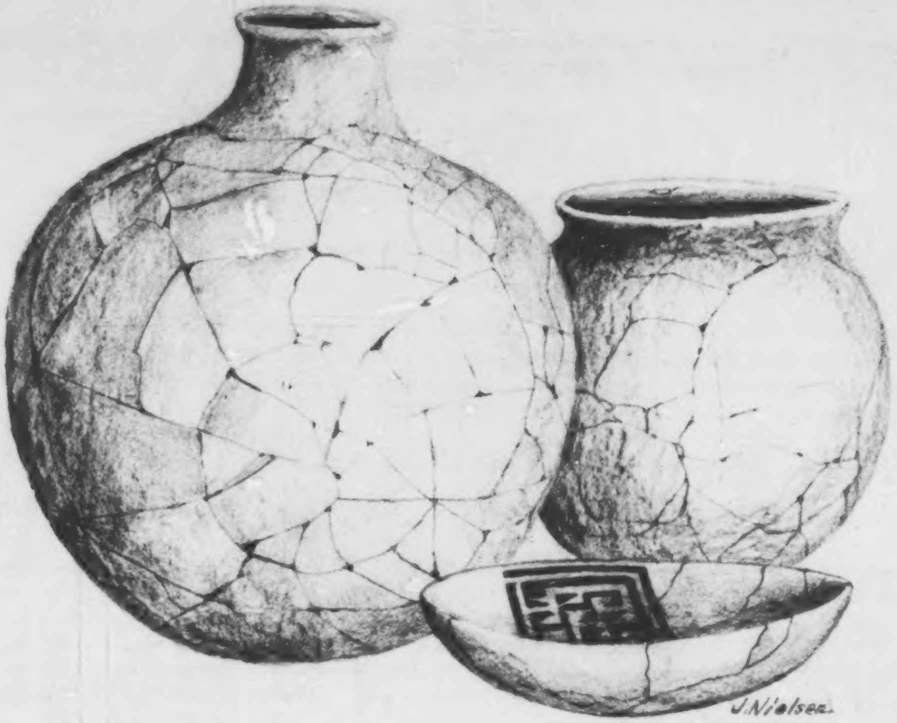

THE ARCHAEOLOGY OF THE RED CLIFFS SITE

Gardiner F. Dalley Douglas A. McFadden

1985

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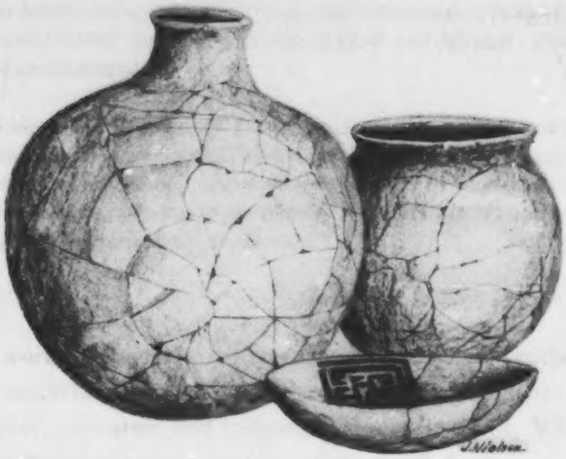

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Cultural Resource Series
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With a paucity of data on the Virgin Anasazi, it was with extreme interest that I began to read and edit this manuscript. Early into the volume, two separate paragraphs caught my attention; they deserve repeating here:

> *Viewed on a full summer midday with the temperature at 110°F., the sky cloudless and brassy, the soil hot and powder dry, the spring grasses and forbes reduced to chaff, the shrubs brittle and apparently lifeless, and not a creature in sight, it is difficult not to consider the site area and environs harsh and difficult - if not totally inhospitable and uninhabitable.*
>
> *Don't dig in the desert in the summer. The heat robs you of strength and time and the sun makes you stupid in the head. There may be no better way to nearly make a living than doing field archeology, but there is no need to be foolish about it, and rooting in the sand or squinting at a notebook when it's 110°F. under the nearest creosote is neither smart nor productive.*
>
> *Gardiner F. Dalley, 1985*

Not only do the words reflect the personality of the senior author, but they are the truth. Is this not true archaeology? The reality of the science, Indiana Jones, the rigors of romance, adventure and temperate climes, it is not. What does this real truth do to confuse the ideologic perception of the public?

Volume 17, The Archaeology of the Red Cliffs Site, fills a crucial void in the Virgin Anasazi literature - - a contemporary descriptive and interpretive synthesis of an early Formative Period (Pueblo I, early Pueblo II) habitation site in the St. George Basin, southwest Utah. The nature and utility of these rather unbiquitous, homogeneous sites that dot the Virgin Anasazi landscape are only now being understood. Study of the Virgin Anasazi culture is yet in infancy. Unravelling the past, although difficult, is challenging. Hopefully the work presented by the authors here will spawn further research and interpretation.

A visit to the site, displayed and interpreted in conjunction with the Red Cliffs Recreation Site, provides a pleasurable experience and as of this writing, is the first prehistoric site to be preserved and maintained for the public in southwest Utah.

Richard E. Fike, Series Editor

ACKNOWLEDGMENTS

It is both a duty and a pleasure to acknowledge the contribution of a number of people who have assisted materially in the production of this report. Without their help it would not have been possible to have come to this point.

A large number of individuals assisted in the field work. Less than full records do not permit a complete listing of the Youth Conservation Corps and Young Adult Conservation Corps crew members who participated in the project, but gratitude is expressed to all, nonetheless. The YCC teenagers endured many brutally hot days assisting with the first years excavations, and the YACC men did excellent work in developing the site for display.

Two individuals, Richard A. Thompson and Richard E. Fike, have been especially instrumental in the prosecution of project and report and their contributions must be particularly acknowledged. Richard Thompson has been constant and unfailing in his support and pursuit of archeological research in the Virgin area, and has been unstinting with his time and resources in support of this and other BLM efforts. Ric ran the excavations for a month the first season (ably assisted by Jan Sivley to who appreciation is also offered), saw to all artifact processing and curation, and did the initial and technical ceramic analysis of the site materials.

We also want to express appreciation to Rich Fike for his contributions specifically to this project; they have covered all phases from excavation through stabilization to report production. More generally, however, the authors believe this an apt place and vehicle to acknowledge Rich's central and very substantial contribution to the development of a viable and productive Cultural Resource program in Utah, as well as in the Bureau; one witness is that this volume is number 17 in a series that Rich initiated only seven years ago. Rich, we feel, has been the right man with the right talents to direct the Utah program, and we greatly appreciate his good work and efforts.

The authors would like to express appreciation to Morgan Jensen, Cedar City District Manager, Kent Giles, Asst. District Manager, and Frank Rowley and Rex Rowley, Dixie and Kanab Area Managers, for their support of the project. This sort of undertaking is somewhat outside what the Bureau normally does, and these men have shown the interest and flexibility necessary to attempt and support something new. The senior author would particularly like to thank Von Swain, Asst. District Manager for Resources, for his very real interest in the project as well as for his support and his flexibility in dealing with the District Cultural program.

Very special appreciation is expressed to LaDawn Berkey for her tireless and always cheerful efforts at the word processor. On rather short notice, she had to deal with much of the original typing and nearly all of the final processing; she has done an excellent job. Sharon Langenegger did a substantial portion of the original typing and produced the larger tables for the volume. Janece Pollock came on board in the District just in time to

become involved in several last minute typing jobs. Julie Brunsman assisted with the tables and did editorial work on several draft sections. The excellent and thorough work of all these women is gratefully acknowledged.

The help of District Division of Administration personnel in procurement and arranging typing and schedules is particularly acknowledged; central to those efforts were Paul Swapp, Arlene Parry and Scott Packer. Appreciation is expressed also to the Division of Operations for design and support of the stabilization effort.

ABSTRACT

This volume reports the excavation of a Virgin Anasazi site located on a tributary to the Virgin River in Washington County, Utah. It marks the first major excavation report for a southwestern Utah desert riverine site since the work of the University of Utah in the mid-1960's.

A detailed analysis of the local environment provides perspective on the prehistoric occupation. It is found that the environment would have been constraining for primitive agriculturalists, but very favorable aspects are also demonstrated. Certain local resources are found to be rather abundant but site deposits yielded little evidence of use of the varied and diverse biotic resource.

Described for two excavation areas are 27 storage units - but only two habitations, outdoor firepits, midden areas, use surfaces, and other minor features. Artifacts were not abundant and ground stone was very scarce. A nice sample of restorable vessels was recovered, however, representing the later of the site occupations. The occupational history of the site is found to be complex and complicated, particularly as regards building sequences in the blocks of storage rooms where extensive rebuilding, reuse and other modifications are evident.

Site occupation, believed to be periodic, is shown to span several hundred years. Indicated are two distinct occupations, deemed to represent local Pueblo I and Pueblo II periods. While change over time is evident, there is also seen marked continuity between the periods, particularly in the evolution of architectural form. A partial and tentative system of unnamed phases is presented to account for the site occupations; this is thought to have validity over a wider domain in the Virgin area but has not yet been formalized.

A brief account of site stabilization for display is provided, along with some notes on the history and conduct of the project, as well as an evaluation of the prospects for additional work on the site. A brief review of previous work in the area is provided that also includes a listing of work in progress.

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INTRODUCTION

Location, Description and General Setting

The Red Cliffs Site, a Virgin Anasazi village of moderate size, is located in the SW1/4NW1/4sec. 14, T. 41 S., R. 14 W., Washington County, Utah (Figs. 2,4). Site elevation is ca. 3260 feet. The site is on lands administered by the Cedar City District, Bureau of Land Management. Despite the low elevation and essential desert character of the immediate area, a Dixie National Forest boundary is less than a mile north of the site. Close by to the south and east are blocks of private land associated with the old Harrisburg town site (Figs. 1,4) and the mining activities at Silver Reef, respectively.

The archeological site is just at the east boundary of the protective withdrawal around the Red Cliffs Recreation Area, a small day and overnight use site, located in the mouth of the Quail Creek drainage about one mile west of Interstate 15. Primary access is via the Leeds exit and ca. four miles of paved road. St. George, the largest Utah city south of Provo, is about 13 highway miles southwest of the site. On a straight line to the south, the Utah-Arizona border is about 15 miles distant.

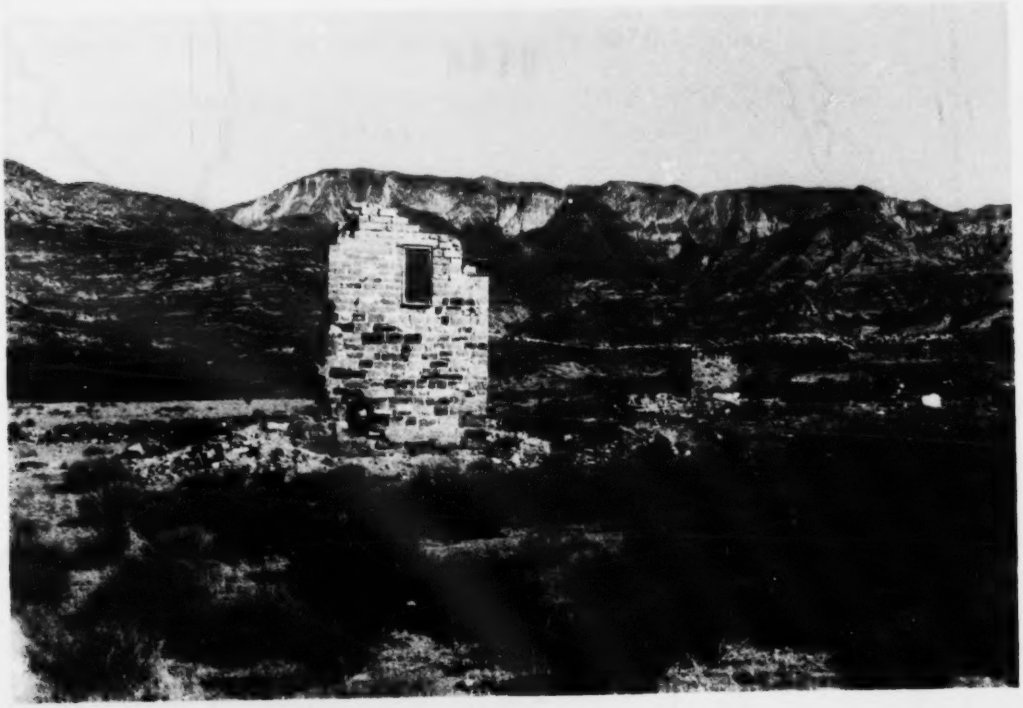


Figure 1. View up Quail Creek to the Pine Valley Mountains. From the Harrisburg town site.

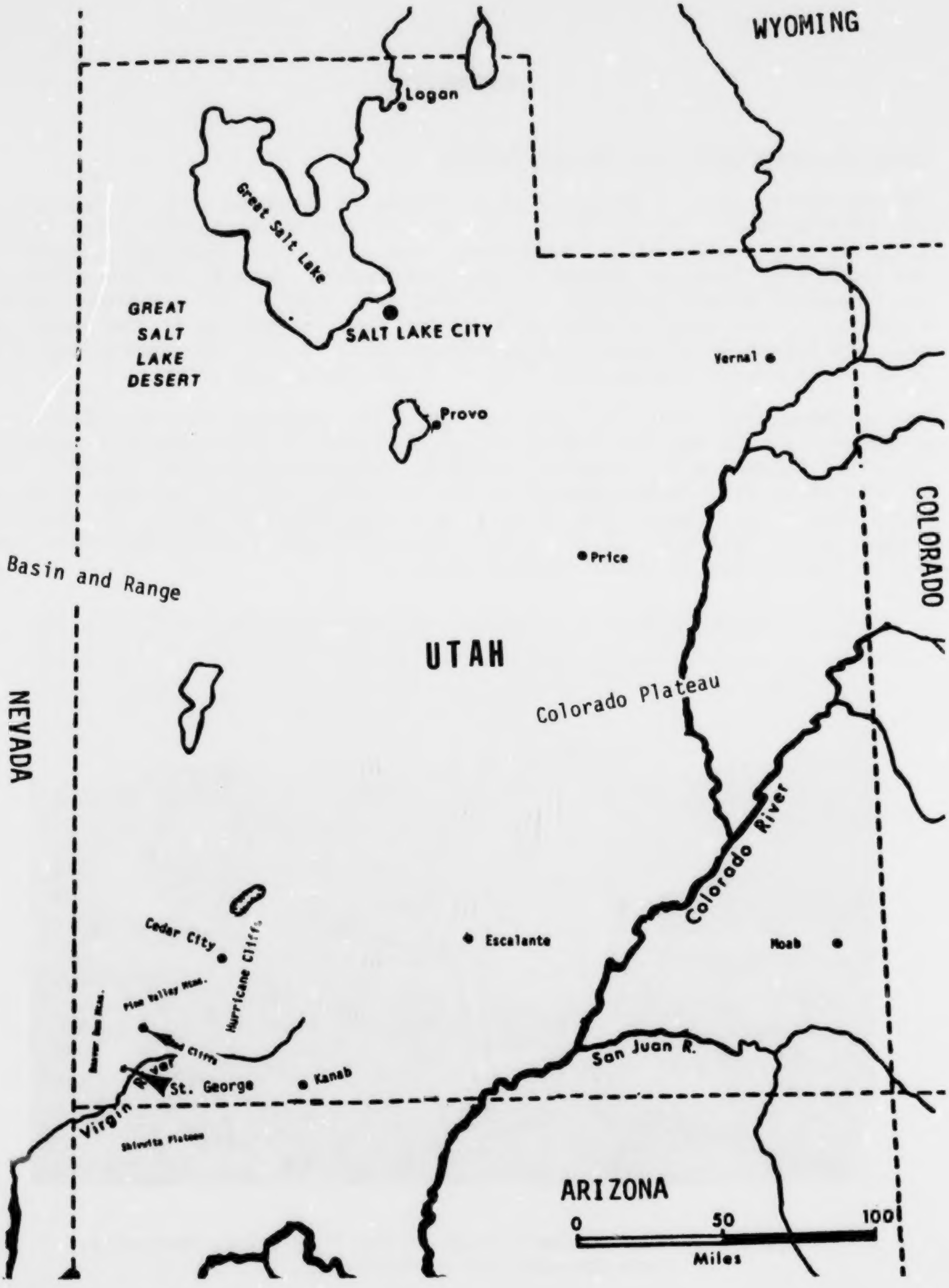

WYOMING
Logan
Great Salt Lake
GREAT SALT LAKE DESERT
SALT LAKE CITY
Vernal
Provo
COLORADO
Price
Basin and Range
UTAH
Colorado Plateau
NEVADA
Colorado River
Cedar City
Hurricane Cliffs
Escalante
Moab
Pine Valley Mtns.
Beaver Dam Mtns.
Cliffs
San Juan R.
Virgin River
St. George
Kanab
Shivwits Plateau
ARIZONA
0
50
100
Miles

Figure 2. Regional location map

The site is near the north margin of a relatively small but quite distinctive geographic area, variously seen as "unique" or "transitional", and variously called the St. George or Dixie Basin, the Dixie Corridor, or in recent botanical literature (Cronquist et al. 1972), the St. George Region of the Dixie Corridor. All of these terms connote something on the order of the same general area, but since students of various disciplines perceive and segment the world differently, the terms likewise carry somewhat disparate definitions and boundaries. The geologists seem generally to be referring to some portion of a larger area seen as transitional between the Basin and Range Province on the west and the Colorado Plateau Province on the east, so exact boundaries are often somewhat vaguely described. Botanists are referring to (1) a small area of extreme southwestern Utah plus a small portion of adjacent Arizona that shows certain of the Mojavean Flora of the California deserts, and (2) a narrow corridor trending eastward, more or less along the Utah-Arizona border, that has provided a plant migration route between the Mojave Desert and the Canyon Lands Section of Utah.

While working various projects around St. George, the present authors have found St. George Basin to be a useful concept. Further, there has often been occasion to note a very satisfying basin simply by standing in certain places in the vicinity of St. George and finding it necessary to look in various degrees of "up" to view the Pine Valley Mountains on the north, the Hurricane Cliffs on the east, the Shivwits Plateau on the south, and the Beaver Dam Mountains on the west. This is probably about what most people conversant with the area visualize when speaking of the St. George Basin, and it carries major elements from most of the more explicit definitions.

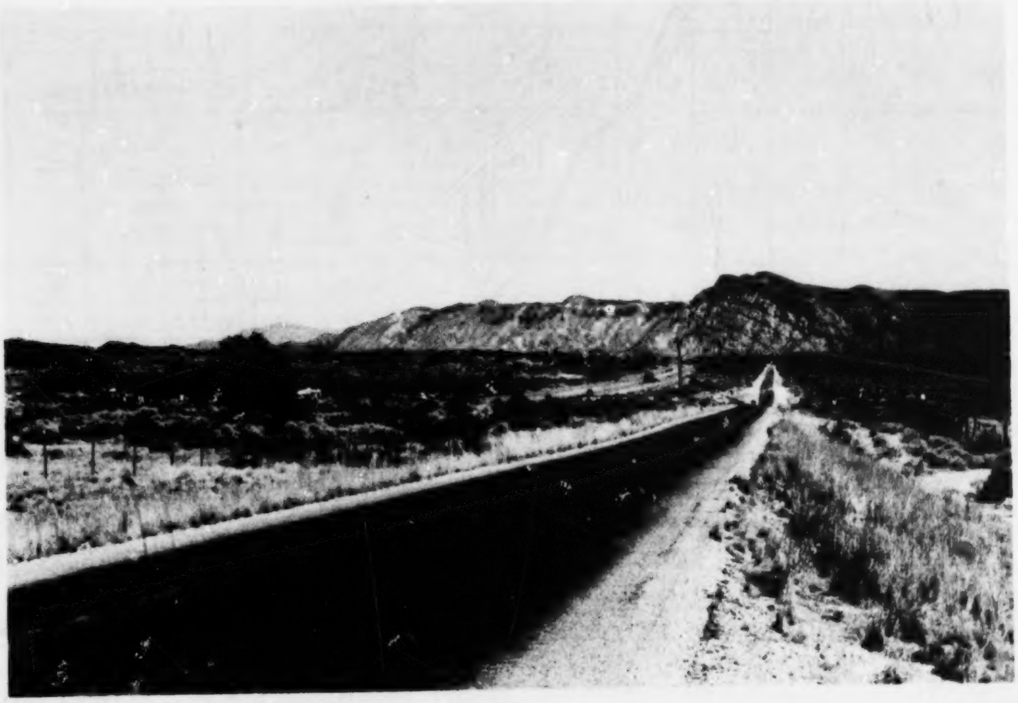


Figure 3. The Hurricane Cliffs. View north from just north of Leeds.

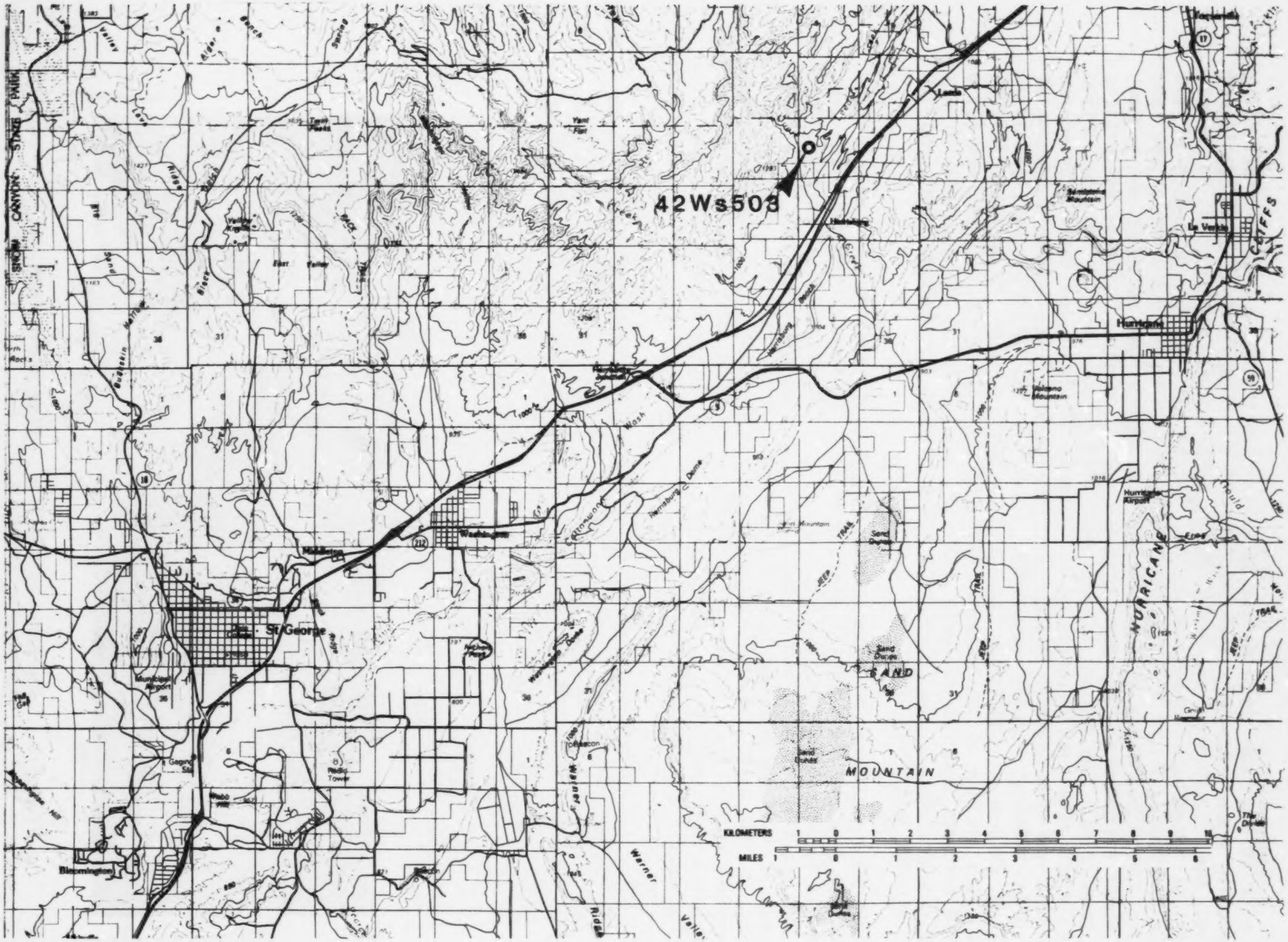

42Ws503
SNOW CANYON STATE PARK
St George
Washington
Middleton
Bloomington
Hurricane
La Verkin
Toquerville
Leeds
HURRICANE
CLIFFS
SAND
MOUNTAIN
Warner
Ridge
Warner
Valley
KILOMETERS
MILES

Figure 4. Location in the context of south-central Washington County.

The conceptual niceties of the larger context aside, in detail the archeological site is positioned (Figs. 7,8,12) atop a short, low, generally north-south trending, sand-capped ridge near the southwest end of a broad, generalized drainage, oriented northeast-southwest (Fig. 6). The drainage margins are sharply defined by the White or Silver Reef on the east, and the base of the big sandstone exposures both the site and the Recreation Area draw their names from on the west. The drainage shows considerable internal relief, including several minor elevated areas similar to the one the site is on, and is quite eroded and dissected (Fig. 12).

The site ridge holds definition (Fig. 21) over only about 200 meters. Along this length, it is more or less flat-topped, with some areas of moderately steep flank, generally somewhat more steep on the west than on the east. Elevation above surrounding areas is only 30 to 40 feet.

Several minor erosion channels are on the ridge flanks, influencing the top minor degrees. The ridge narrows (and steepens somewhat) from 20 meters wide on the south end to about 35 meters in the area of prehistoric occupation. From the visible occupation area, the ridge maintains a fairly constant width of 30 meters to a rapidly narrowing, abrupt north end (fig. 21).

The core of the ridge is apparently a sandstone outcrop, probably the upper, Springdale member of the Moenave. The supposed core was never exposed in excavation, but there is broken sandstone low on the ridge's flanks along with traces of broken bands of deteriorating stone. There is some apparent stream gravel along the east edge and flank. This was also encountered in excavation, but full depth and areal extent were not determined. The gravel appears poorly sorted, but generally shows much smaller material than seen on the flanks of the next ridge to the east, between the site and Leeds Creek.

Areas immediately surrounding the site ridge to the north, south, and east are mainly rather badly washed, eroded and dissected. To the west, however, is a ca. four acre pocket of sand (Fig. 15), rather level, that supports a good stand of sand sage (Artemisia filifolia). This area gives an impression of having once been used as a field, either prehistorically or related to the Harrisburg occupation. Just west of the small flat is a minor watercourse coming from a big sandstone canyon to the north. There are minor seeps in the vicinity of the canyon mouth and the drainage stays sufficiently damp to support a few cottonwoods and limited amounts of other riparian vegetation.

The site is ca. 900 meters north of the confluence of Leeds Creek and Quail Creek (Fig. 7,8). Quail Creek exits its narrow canyons in the massive sandstone exposures at the Recreation Area about 500 meters west of the site. In the vicinity of the site, and for a mile or so to the north, Leeds Creek runs right along the White Reef; it exits the higher country and its relatively broad canyon about four miles north-northeast of the confluence with Quail Creek, just above the old mining town of Silver Reef.

While Leeds Creek is the larger and more dependable water, the stream below the confluence takes the Quail Creek name. The creek turns southeast just below the confluence, runs immediately south of historic Harrisburg, cuts through a high, Shinarump-capped remnant of the west flank of the LaVerkin (or

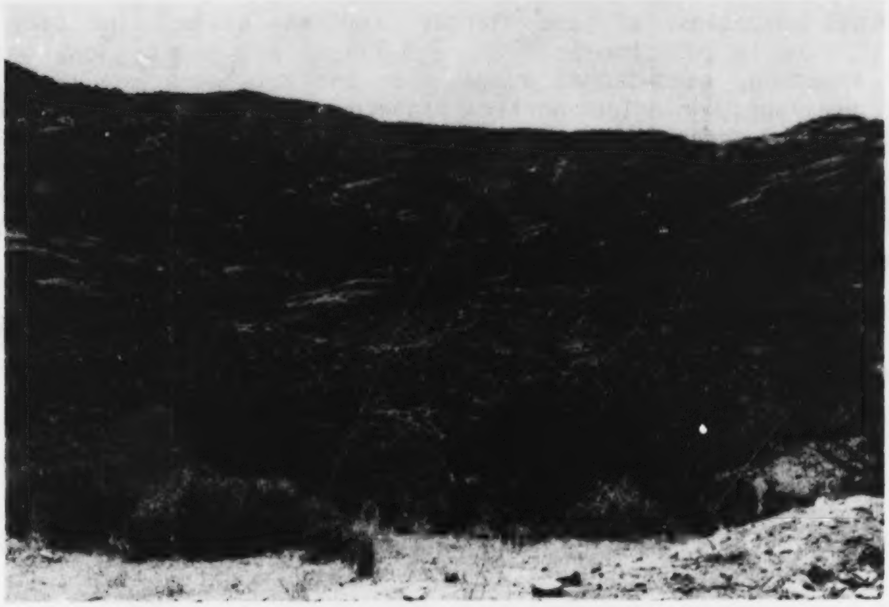


Figure 5. View west from the site up the Quail Creek drainage.

Figure 6. View north from the site towards Silver Reef.

Harrisburg-Virgin) anticline, runs across the breached/eroded core of the anticline, cuts through the high remnant west flank (again capped by resistant Shinarump) to immediately join the Virgin River (Shelton 1966, 86; Maxfield 1977, 5). The river follows the flank of the northeast-southwest trending anticline closely for several miles, cutting across between the Harrisburg and Washington Domes and thence into the lower area of the St. George Basin. The river is joined by the Santa Clara just south of St. George; it exits the state ca. eight miles below that confluence at an elevation of ca. 2400 feet.

Above the sandstone exposures northwest of the site are the Pine Valley Mountains, an eroded and exposed laccolith, rising to an elevation of 10,365 feet, only 8.5 horizontal miles from the site's 3260 feet. Seen from NNE to SSE of the site are the high, often near vertical Hurricane Cliffs, generally marking the trace of the Hurricane Fault, which, further north at least, rather sharply marks the boundary between the plateaus to the east and the Basin and Range Province on the west. Above and beyond the fault are a series of mesas and then the massive sandstone exposures of Zion National Park.

Little Creek Mountain, a well-documented area of Virgin Anasazi site concentration (Heid 1982), and more on the order of a slightly tilted mesa than a mountain, is just above the Hurricane Cliffs ca. 12 miles southeast of the site. The country running southwest of the site to the low area of the basin around St. George is rather easy, gently sloped but quite cut-up by numerous drainages off the base of the Pine Valleys. The alluvial bottoms south of St. George and Washington, as well as for some distance back up the Santa Clara, represent areas of restricted but relatively rich agricultural lands, much of which are currently being given over to other development. This area was apparently also a strong locus of Virgin Anasazi sites, but only a few have escaped development and/or vandalism, which unfortunately is currently showing a marked increase.

To return to the archeological site per se, there were certain surface indications observed prior to excavation that prompted the location of initial work as well as the general approach to the site. One locus of such evidence was observed at the extreme south end of the site ridge where old vandalism had exposed two or three large cists (Fig.9) along the east side of the ridge top; apparently associated was a light sherd and stone scatter on the slope and atop the ridge. This appeared to be a very restricted area with limited potential for additional, undamaged features, and it was given low priority for attention. It was never involved by the project, but based on interpretations and what was exposed elsewhere, the south end may actually have considerable potential.

Most of the occupation evidence was noted at the approximate mid-(and wide) point of the ridge; this area was selected for the start of excavation. Here were seen four or five pot holes that had exposed and/or displaced structural stone and clay, an extensively potted area that showed darkly stained sand coming out of recent rodent burrows, one apparently undisturbed alignment of slab tops, and some apparent minor mounding in the areas of disturbed structures. Also noted was a very light scatter of sherds and stone flakes atop the ridge, with some concentrations in minor erosion channels on both flanks.

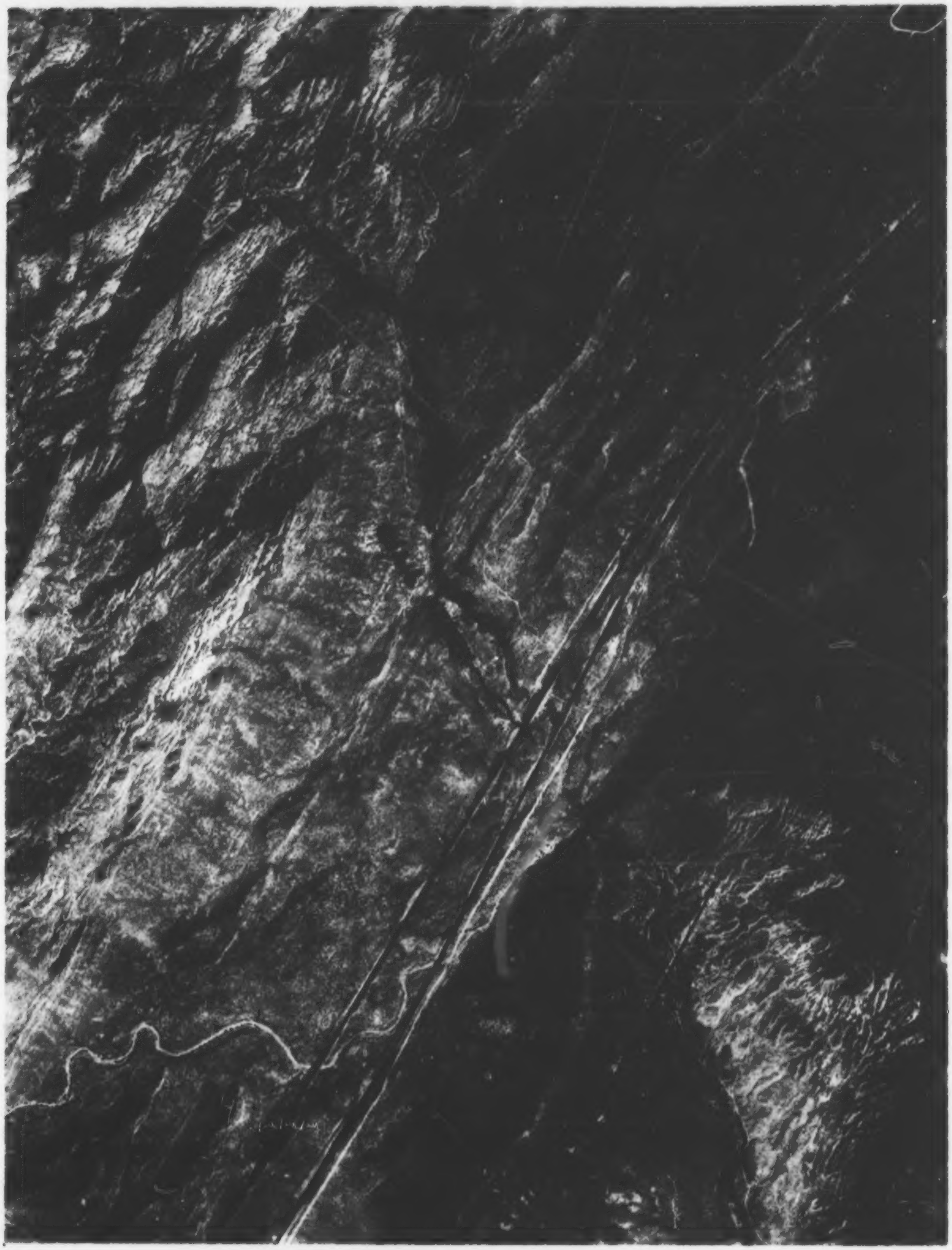


Figure 7. Aerial photograph showing detail of the area surrounding the site location.

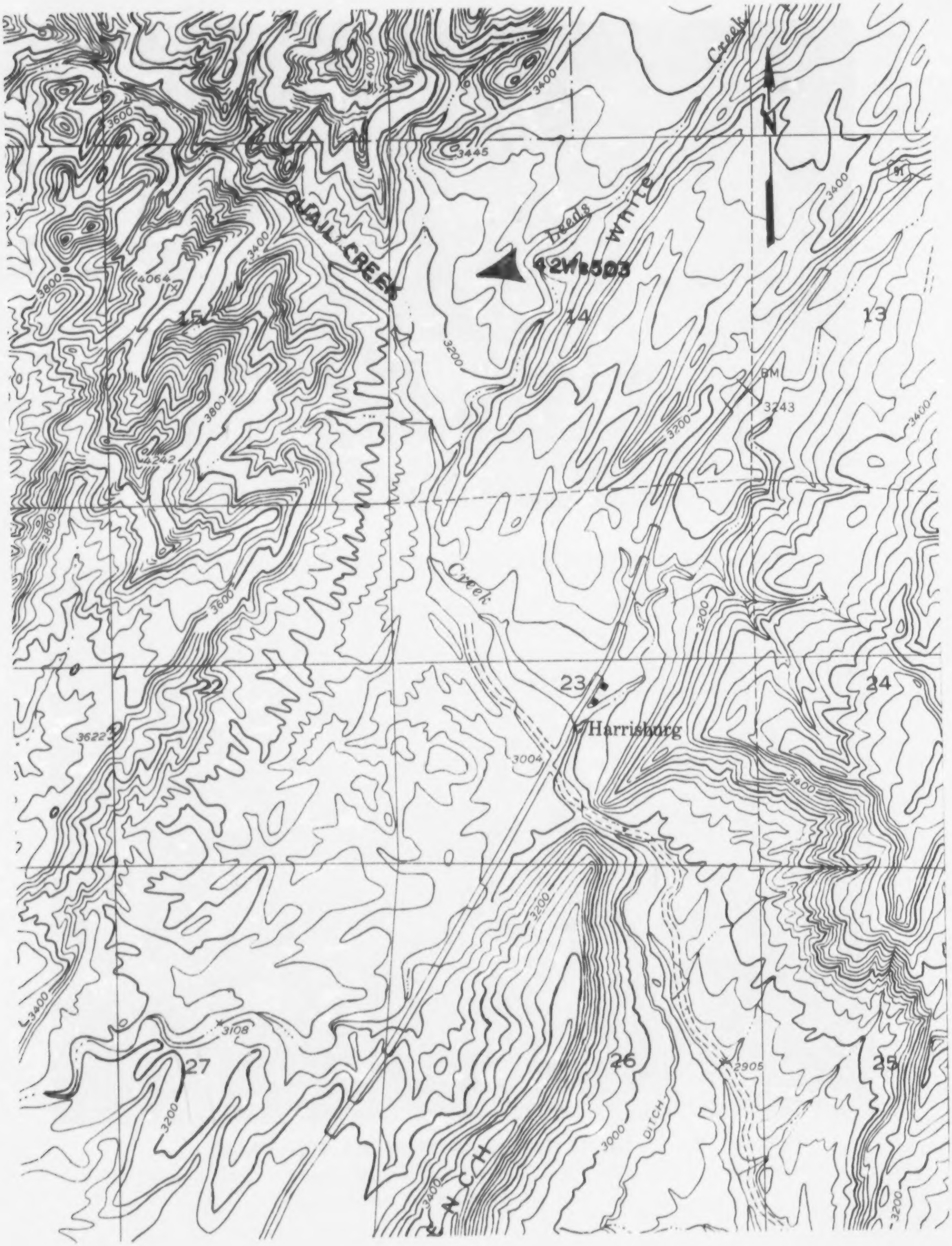

QUAIL CREEK
Leeds
White
Creek
42Ws503
N
3445
3400
4000
3600
3800
4064
3400
15
14
13
3200
3800
4242
3200
BM
3243
3400
3800
3600
Creek
3200
22
23
24
3622
Harrisburg
3004
3400
3200
3200
3400
3108
27
26
25
2905
3200
3000
DITCH
3400
RANCH
3200

Figure 8. Topographic representation of approximately the same area covered by Fig. 7.

Figure 9. Potted cist, south end of site ridge.

Figure 10. View to the south from the site ridge.

All the surface evidence noted in the preceding paragraph was restricted to what is reported in subsequent sections as "Area A" (Fig. 22). On the surface of what eventually became "Area B" was not a shred of evidence of the several constructions buried there, some under only a few centimeters of sand. No evidence of occupation was seen on the surface over the considerable area north of the main concentration, either, but this is no longer seen as any particular indication that there is nothing under the ground on the northern portion of the ridge (Fig. 21).

Natural Environment and Available Natural Resources

Viewed on a full summer midday with the temperature at 110°F., the sky cloudless and brassy, the soil hot and powder dry, the spring grasses and forbes reduced to chaff, the shrubs brittle and apparently lifeless, and not a creature in sight, it is difficult not to consider the site area and environs harsh and difficult - if not totally inhospitable and uninhabitable. On the other hand, given a day in late March and a quick trip south from Cedar City and 14 inches of new snow, the 70°F. temperature, warm damp sand, magnificant vistas, blooming trees and shrubs, and a carpet of spring greenery do not look all that bad - perhaps something on the order of the Garden of Eden, West.

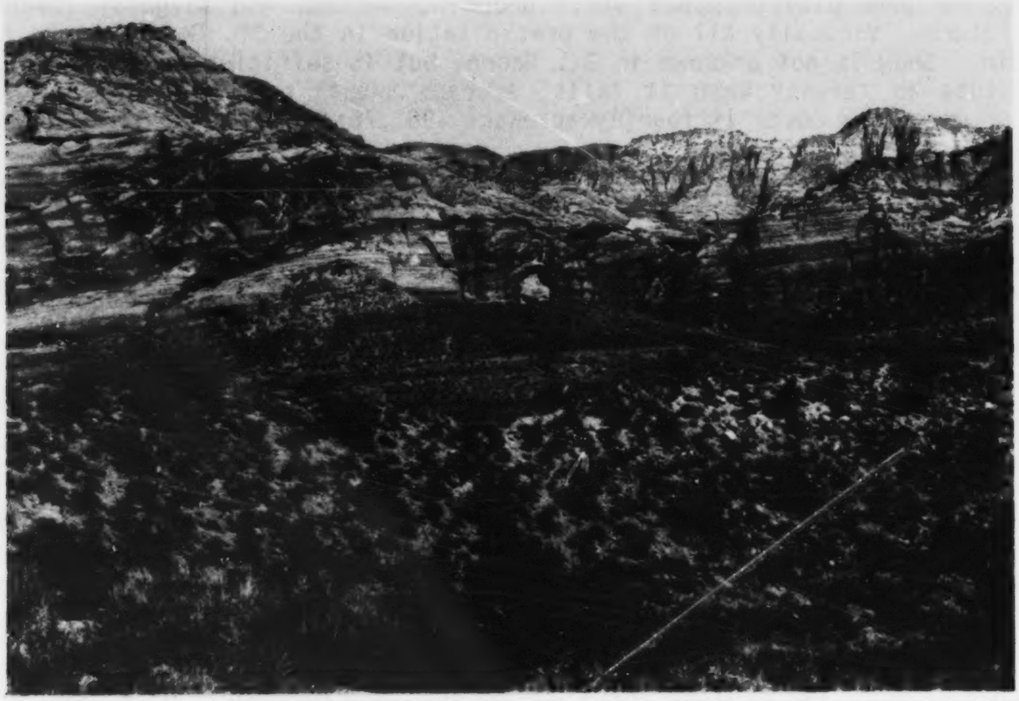


Figure 11. View northwest from Leeds Creek into massive sandstone exposures.

In some respects, both extreme perpectives have certain validity. The area is essentially a desert, characterized by deficient precipitation, extreme temperature, marginal soils, and sometimes violent weather. It must have been difficult for primitive agriculturalists, as it was for the "Dixie Mission" Mormons who settled the area. Still, there are factors such as relatively abundant live water, a long growing season, and mild winters that make the area attractive. Further, the position of the area and its geological and topographic diversity combine with these other considerations to provide a wide range of flora and fauna, abundant raw materials, as well as other values. It is toward an identification and explication of some of the area's limiting and enhancing characteristics, particularly as regards use by prehistoric groups, that forms the focus for the balance of this section.

Cooperative Weather Station data are available from LaVerkin and St. George, both located within the St. George Basin. Both are within just a few miles of Red Cliffs with LaVerkin at a slightly higher, and St. George at a slightly lower elevation than the archeological site. The St. George material is used here as it carries the more familiar name, and in some reportings is the longer record.

Table 1 shows temperature and precipitation figures for St. George. Comparable figures for the immediate site environs would probably be slightly higher for precipitation, but still under 10 inches, and slightly lower for temperature. Virtually all of the precipitation in the St. George Basin falls as rain. Snow is not unknown in St. George but is sufficiently uncommon as to constitute an "event" when it falls; average annual number of days with one inch or more snow cover is four(Rykaczewski 1981,76; Meyer 1976, Table 1).

Winter precipitation in the area is mainly from frontal systems moving southeastward from the Gulf of Alaska; summer storms are most often thunderstorms resulting from an influx of warm moist air from the Gulf of Mexico (Rykaczewski 1981,49). Some local orographic precipitation occurs throughout the year, often enhanced by co-occurrence with other storm-producing systems; closed lows, most common in May and October, and marking the transition from one predominate air flow to the other, can result in heavy and overall appreciable precipitation (Rykaczewski 1981, 49).

Evaporation, because of the number of factors that must be considered, is difficult to measure. Pan evaporation is the most common form of measurement taken, but it is not done at most cooperative stations, so exact figures for the Basin are not readily available. Extrapolated data are presented by Rykaczewski (1981,83) that indicate a May to October rate of about 60 inches for the Red Cliffs area.

As limited as the annual precipitation per se is shown to be, it is rendered even less effective for crop production by two additional factors (besides the relatively high evaporation rate). First, a disproportionate amount of moisture falls during the winter (Table 1), and, secondly, much of the summer precipitation falls in brief, intense thunderstorms and is lost in rapid runoff. Also particularly striking in the data (Table 1) is the strong tendency for average precipitation to fall off sharply in April, May and June - the period it is needed to start seed and establish plants.

TABLE 1

TEMPERATURE AND PRECIPITATION DATA FOR ST. GEORGE

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Temperature (^{o}F)												
Extreme Maximum	72	81	89	98	108	116	115	113	108	99	86	75
Mean Maximum	53	60	67	76	87	96	101	99	93	80	65	54
Mean Average	39	44	50	59	68	77	83	81	73	61	48	39
Mean Minimum	25	30	33	43	52	61	68	67	57	43	36	27
Extreme Minimum	-11	1	12	18	25	35	41	43	25	12	4	-4
Precipitation (in.)												
Mean Monthly	0.98	1.04	0.88	0.50	0.41	0.19	0.76	0.80	0.62	0.71	0.52	0.82
Maximum Monthly	2.71	3.61	3.61	1.59	1.60	1.75	1.73	2.22	4.16	3.07	2.55	2.84

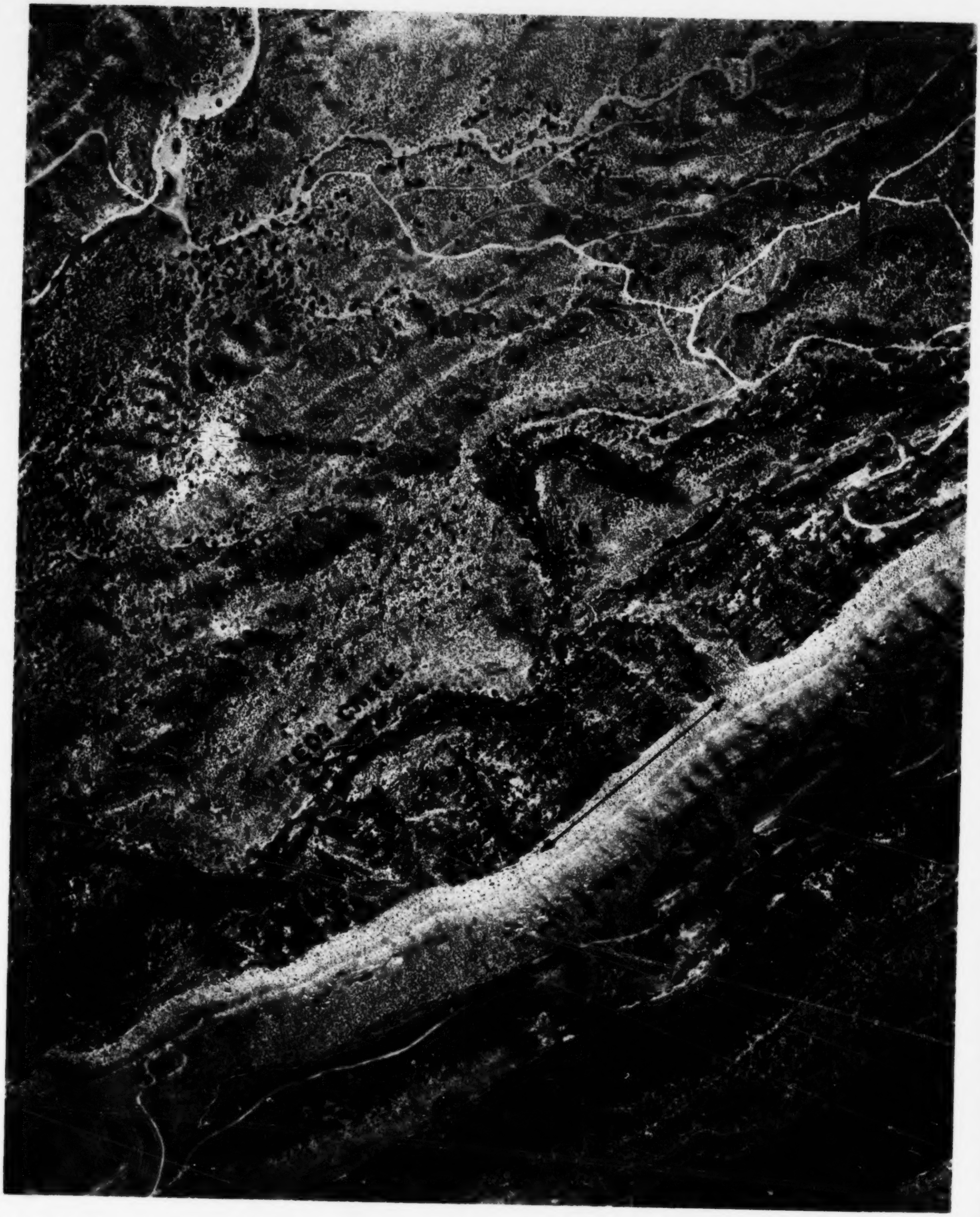


Figure 12. Low-level aerial photograph of immediate site environs.

The average frost-free period near St. George is well in excess of 200 days, while mean minimum temperatures below 32°F. occur only in December, January and February (Rykaczewski 1981,42,45). Temperatures below 0°F. are occasionally recorded, but on average, winter temperatures seldom fall into the teens.

Soils in the immediate vicinity of the Red Cliffs Site (Fig. 12) are described as badland; those in the large drainage back north along Leeds Creek (Fig. 12) are classed as the Veyo-Curhollow complex of the Veyo Series (Mortensen 1977, Map Sheet 42). The badland "soil" is assigned a general Capability Class of VIII, which "have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, water supply, or esthetic purposes" (Mortensen 1977, 56). The general VII Class of the Veyo-Curhollow complex indicates soils that "have severe limitations that make them unsuited to cultivation and restrict their use largely to pasture, range, woodland, or wildlife habitat" (Mortensen 1977, 56). These data probably can be taken to mean that the Anasazi had to restrict crop placement to pockets of sand along the water courses, such as the one noted in the general site description, above (Fig. 15).

Seemingly, then, save for a long growing season, there is little in terms of climate (and soils) to recommend the site area to Anasazi agriculturalists. Attempts to grow corn with available precipitation, in the face of rainfall patterns and high temperatures, could result in some very long growing seasons, indeed.

One resource that must have been very attractive, both in the immediate site area, as well as in the St. George Basin in general, is relatively abundant live water. Several perennial streams enter the Basin from the north or east, all eventually exiting via the Virgin River. Additionally, springs and seeps are actually quite numerous as reference to USGS Topographic maps for the area will show.

Particularly pertinent to the site, of course, are Leeds Creek and Quail Creek. Leeds Creek is a perennial stream that flows at a mean rate of 7.1 c.f.s., with a minimum flow of 0.2 c.f.s. and a maximum of 2710 c.f.s. (Utah Water Research Laboratory 1974, Table 4). Quail Creek is not considered perennial but moisture is sufficient, as augmented by seeps at the canyon mouth, that dense riparian vegetation is maintained along its banks.

Both Leeds Creek and Quail Creek, as well as several other streams, head at the base of the Pine Valley Mountains. In sharp contrast to the interior of the St. George Basin, the Pine Valleys receive from 20 to 30 inches of precipitation a year, much of which accumulates as winter snow pack. It is not, however, simply a matter of spring runoff that feeds the streams. Rather, as Cook (1954, 229) states: "The most valuable mineral resource in the Pine Valley Mountains is water. The greatly jointed Pine Valley laccolith is a vast water reservoir. Melt water from the heavy winter snows seeps into the laccolith along joints and is discharged in springs at the base of the intrusive body, above the relatively impermeable Claron limestone." While not specifically noted by Cook, this mechaniam must greatly enhance the useful potential of the snow melt by slowing and leveling runoff.

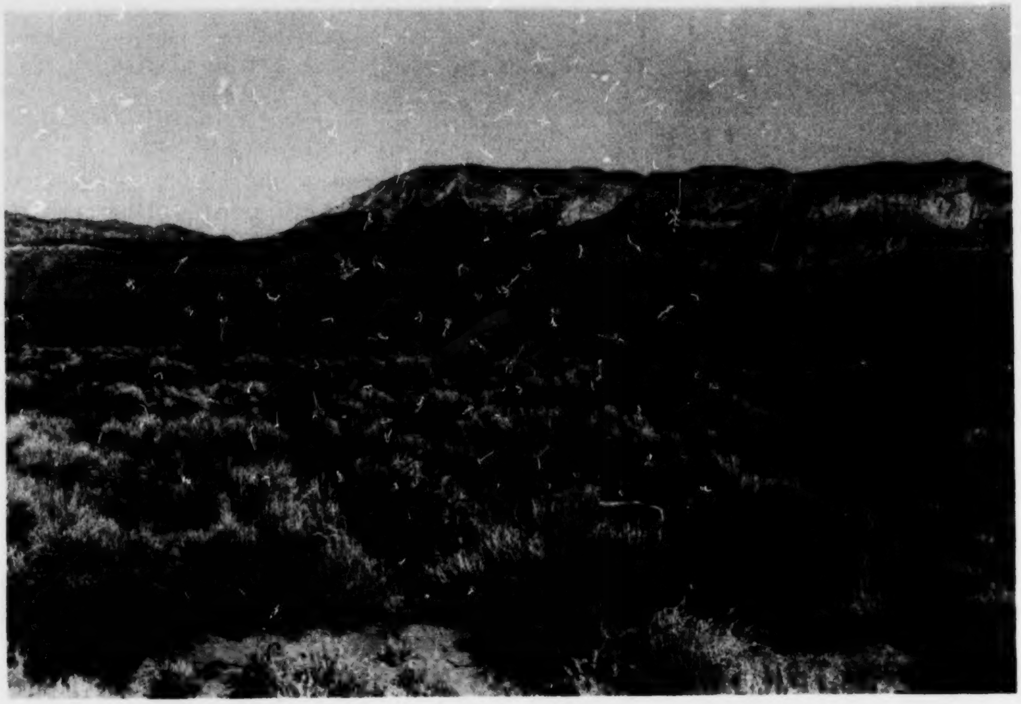


Figure 13. View up Leeds Creek to the Pine Valley Mountains.

As noted previously, the big Pine Valley laccolith, in addition to being something akin to a modern water tank, is one of several "textbook" examples of various geological phenomena that can be seen from the vicinity of the Red Cliffs Site. Whether the Anasazi occupants of the site enjoyed the view or not, they would have had good reason to appreciate the various formations, exposures and mechanisms that provided close and abundant supplies of many of the raw materials they needed to survive.

Building materials are readily accessible from the site in the form of tabular sandstone slabs (and useful debris) from the Kayenta formation exposed west of the site, as well as from the White Reef east of the site; either source is just a few hundred yards distant. The tabular material from the reef is rather soft and friable, but was used extensively anyway. Actually, there is an occasional small exposure of tabular stone, similar to that from the reef, in the drainage immediately east of the site; and, rough but usable (and used) blocks for masonary walls are found low on the flanks of the site ridge itself. Clay, suitable at least for building purposes, is quite abundant on the "badland" areas around the site, and one small bank is exposed on the northwest flank of the site ridge. Apparent ceramic-quality clays were not specifically identified during project work, but sources are probably nearby.

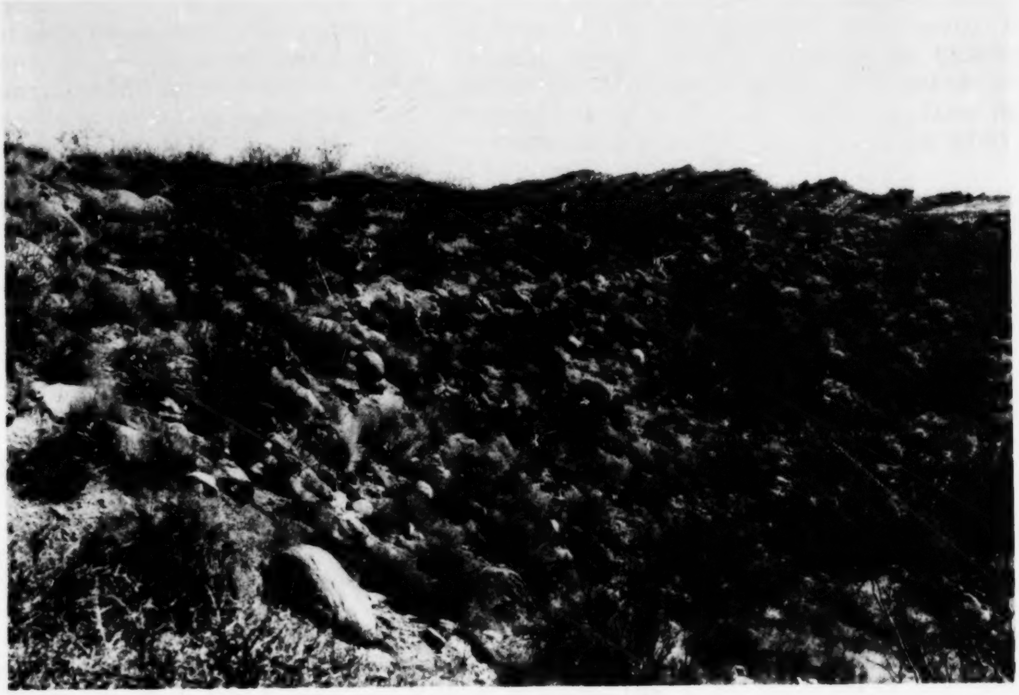


Figure 14. Gravels on bank of Leeds Creek.

More striking, however, than the sandstone and clay, which are often close associates of Anasazi sites, is the local availability of the harder/finer-grained rocks sought after as source materials for the production of grinding, pointing/cutting/scraping, pounding and etc. tools. In the gravels on the flanks of the bigger ridge just east of the site, as well as along Leeds Creek itself (Fig. 14), are found numerous quartzite cobbles; abundant pieces of water-smoothed granite, ranging conveniently from mano to metate size; pieces of sandstone appreciably more durable than that exposed locally; an occasional chert/chalcedony nodule; and numerous nodules of a form of limestone described by Folk (1959) as micrite.

Apparently reflected in this "abundance" is debris and detritus from geologic formations spanning the period from the late Triassic to the Oligocene and representing a wide range of mechanisms, depositions and environments of deposition (Hintze, 1973). Leeds Creek and its tributaries essentially "mine" by water action something in excess of 3000 vertical feet of various and exposed sedimentary deposits, from the Kayenta up through the Claron. The latter being the formation the Pine Valley intrusion spread across (Cook, 1954; Hintze, 1973). Added to this is the residue from the cover of volcanics and other late formations, displaced by, and eventually stripped from the big laccolith, plus material from the laccolith itself (Cook, 1954;Hintze, 1973).

Probably the two terms most commonly used to describe the flora and fauna of extreme southwestern Utah are "complex" and "diverse". Much of the complexity and diversity relates to the transitional nature of the area, which has produced an array of diverse environments. While the concept, or at least the term transitional is sometimes overused, there is a portion of southwestern Utah that is transitional with a vengence, as marked transitions are occurring on both east-to-west and north-to-south axes.

Addressing diversity vis-a-vis the dual transitions, Meyer (1976,1), introducing a study of the vascular plants of Washington County, notes:

> "Perhaps more important than environment diversity per se is the fact that these diverse environments are not arrayed in random mosaic fashion. The county represents the site of the juncture and interdigitation of geographically bounded environments which are themselves relatively homogeneous.
>
> The county straddles the physiographic boundary line between the Colorado Plateau Province and the Basin and Range Province. These two provinces are lithologically, geomorphologically, and climatically very different, and the transition between the two takes places within the 60 mile east-west distance spanned by the county.
>
> Superimposed on this essentially east-to-west environmental transition is a well-marked climatic transition that is oriented in a north-to-south direction. This transition is associated with a drop in elevation as one proceeds southwestward through the county along the Virgin Drainage and represents a trend that continues over a very large distance rather than a local pocket of low elevation in the midst of highlands. ...the county lies almost equally over the region in which the two pairs of bounded environments intersect each other. This accounts in large measure for the great environmental diversity in the area and sets the stage for the study of floristic interactions".

For Washington County, Meyer (1976,59) recognizes nine vegatative Communities and 20 plant Associations. Dotson (n.d., 7), who orders the biological world somewhat differently than does Meyer, recognizes eight plant Communities for the LaVerkin Springs Unit, a relatively small area a few miles east of Red Cliffs that involves several miles of the Virgin River and adjacent land, including the core of the Virgin Anticline. For this area Dotson lists 310 species of vascular plants representing 62 families. Most of Dotson's Communities are directly or roughly equatable to Meyer's Associations.

Following Meyer, the Red Cliffs ridge per se and immediately surrounding areas appear to show strong elements of the Creosote Bush Association (Hot Desert Shrub Community) and the Blackbrush Association (Cold Desert Shrub Community). Noted on the ridge top, flanks, and close along the base are creosote bush (*Larrea divaricata*), blackbrush (*Coleogyne ramosissimum*), sandsage (*Artemisia filifolia*), Mormom tea (*Ephedra nevadensis*), white burrowbrush (*Hymenoclea salsola*),indigo bush (*Dalea fremontii*), range ratany (*Krameria parvifolia*), Anderson wolfberry (*Lycium andersonii*), desert almond (*Prunus fasciculata*), snakeweed (*Gutierrezia sarothrae*), one or another

Figure 15. Sand sage flat west below site ridge.

Figure 16. Concentration of large shrubs off north end of site ridge.

of the rayless goldenweeds (Haplopappus spp.), desert or purple sage (Salvia dorrii carnosa), squawbush (Rhus trilobata), bush encelia (Encelia frutescens), dove weed (Croton californicus), Indian ricegrass (Oryzopsis hymenoides), desert marigold (Baileya multiradiata), Utah beavertail (Opuntia basilarus), claretcup (Echinocerus triglochidiatus), desert trumpet (Eriognum inflatum), cholla (Opuntia echinocarpa), Utah juniper (Juniperus osteosperma), and narrow-leaf yucca (Yucca augustissima).

Just off the northwest toe of the ridge (Fig. 16) is a rather dense, marked but restricted stand of large shrubs and some trees. Present are juniper, desert almond, shrub live oak (Quercus turbinella) and some squawbush. On the intermittent drainage to the west are cottonwood (Populus fremontii), a few velvet ash (Fraxinus velutina) and single-leaf ash (F. anomala), lots of the big Palmer penstemon (Penstemon palmeri), and some invading tamarisk (Tamarix pentandra). The canyons and slopes west of the site were not specifically inventoried, but there are notably a few century plants (Agave utahensis) present.

Tight along Quail Creek in the canyon mouth (in the campground, actually) were noted good stands of cottonwood and velvet ash, willows (Salix spp.- a couple of small forms and the big tree-size Salix laevigata), arrowweed (Pluchea sericea), waterwillow (Baccharis emoryi), sedges (Carex) and bulrushes (Scirpus), lizardtail (Anemopsis californica), horsetail (Equisetum) and a few tamarisk. Single-leaf ash is nearby but not right on the water.

The immediate site area, then, does show a large number of plant species that no doubt at least provided building materials, fibers, etc., and could have provided a fairly substantial edible resource. How extensively the latter option was explored by the local Anasazi is, however, still open to question.

Considerable space has been invested to making certain observations relevant to plants, particularly concerning the diverse and complex nature of the local flora, and animals will be given short shrift. Very few direct observations were made during the course of the project, and very little evidence came from the site deposits (Table 9) to indicate use of the available animal resource. There are, of course, certain animal associations characteristic of the various plant communities, thus forming the biotic community; therefore, in greatly oversimplified terms, a large number of diverse plant communities will show a large number of animal species. Dotson (n.d.) presents the animals identified for the LaVerkin Springs Unit by vegetative community; birds, reptiles and small mammals are well represented, larger mammals are not. Of note in terms of a periodically abundant resource is that the area is on an established migration route, and waterfowl can be quite plentiful in the fall and spring.

To close this section, but still with a view to the potential of the Red Cliffs Site environs for gathering (and hunting, which as stated, is not much addressed here), one last point relevant to the areas diverse resources should be made. By following Leeds Creek (Fig. 13) from the archeological site to its head in the vicinity of the Oak Grove Camp ground (base of the Pine Valley laccolith), one can pass (and could exploit) through the majority of the communities and associations noted by Meyer (1976, 59) for the entire county, up to the Transition Forest Community/Ponderosa Pine Association. This in a relatively easy trip of ca. nine miles and about 3200 vertical feet.

More specifically, a very similar transect to the one just postulated was run by Wells (1960, 553-556) who recognized five distinct plant formations from a "Microphyllous Shrub Formation" (Sonoran Desert Shrub) to a "Broadleaf Deciduous Woodland Formation" (Gamble oak/serviceberry), just short of the Ponderosa forest that prevails above 6500 feet and is the point at which Webb ended his transect. Besides the diversity reflected over this relatively restricted area, Well (1960, 353-356) makes the interesting observation of an evergreen shrub formation, termed a true chaparel, floristically similar to the Arizona chaparel and characterized by Quercus turbinella, Ceanothus greggii, Arctostaphylos pungens, Garrya flavescens, Cercocarpus ledifolius and Eriodictyon augustifolium. A good representative of this formation (Fig. 17) is seen as a rather crisp zone when coming off the Black Ridge via. I-15 just a few miles north of Red Cliffs.

The Cultural Environment: Previous and On-Going Research

The history of archeological research in the Utah portion of the Virgin region is mainly one of brief and sporatic forays into the area with no particular coordinated approach or continuity of effort apparent. This situation has begun to change over the last ten years through the work of the Southern Utah State College field school on Little Creek Mountain, and the greatly increased involvement of the Federal Government in Cultural Resource Management.

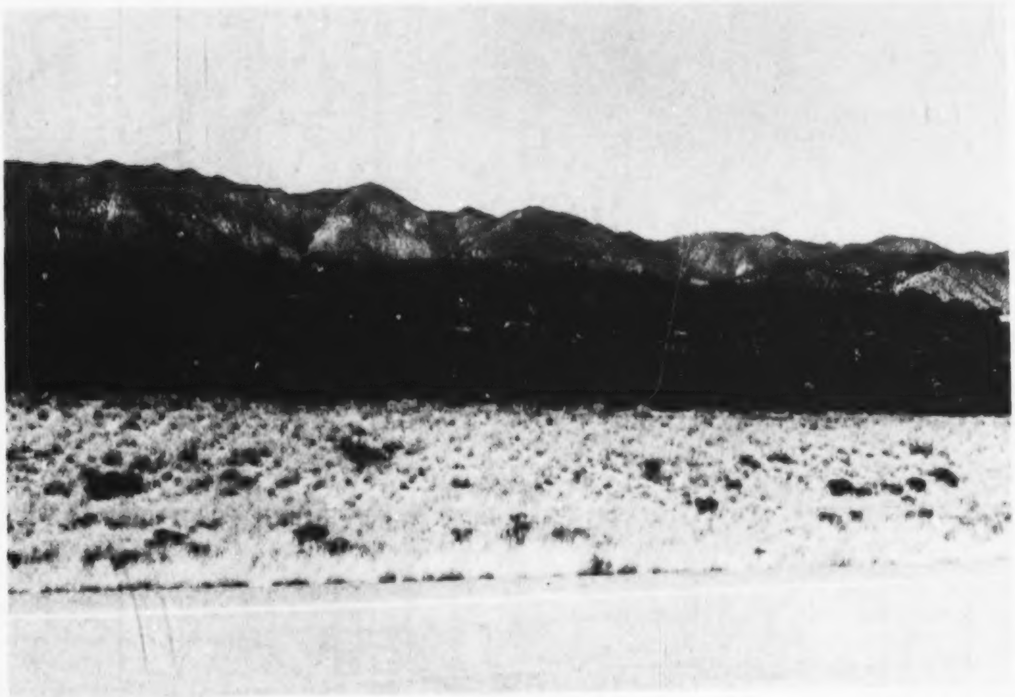
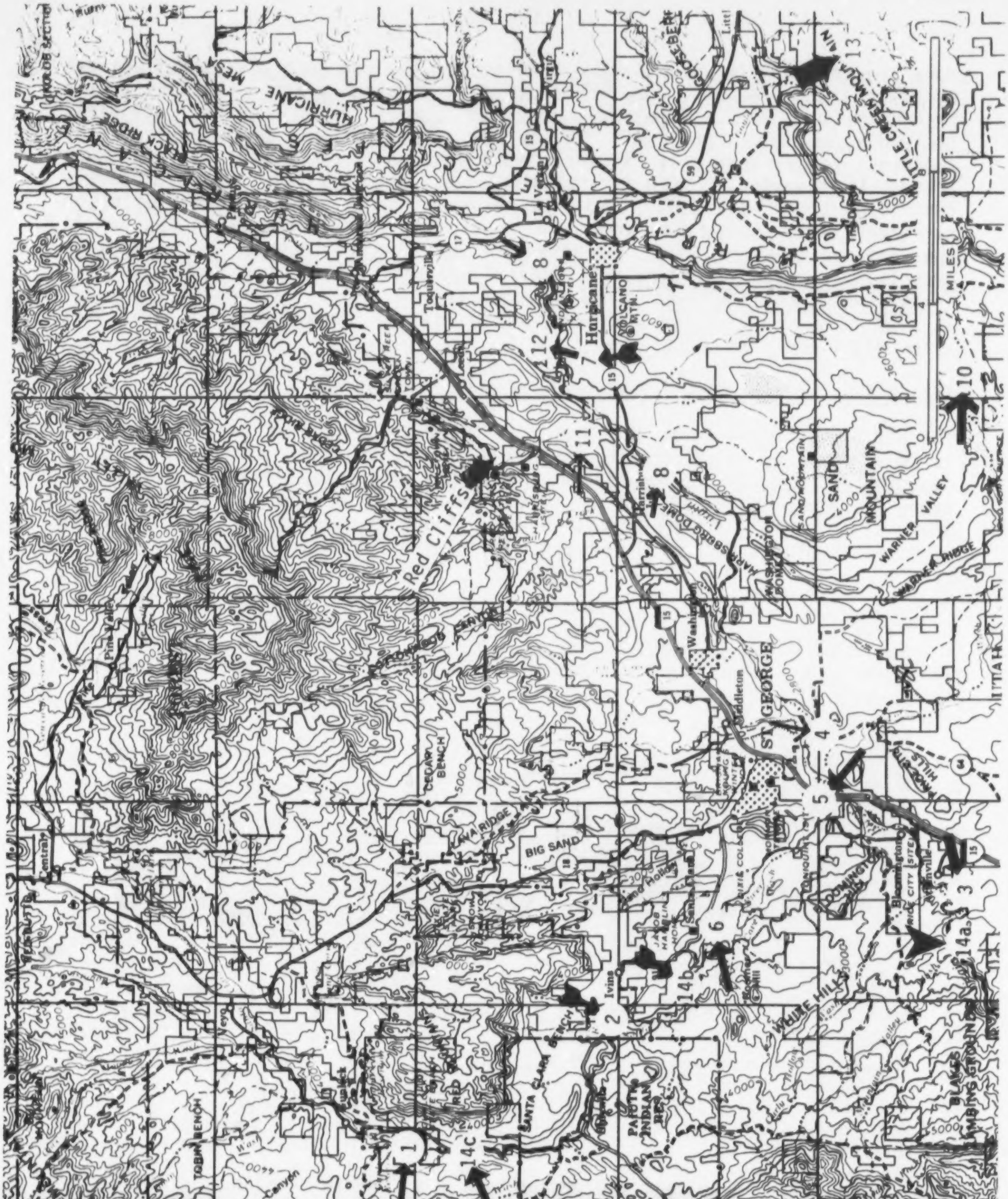


Figure 17. Chaparel (mid-ground) ca. 6 mi. north of site.


ST. GEORGE
Hurricane
Red Cliffs
Washington
Middleton
WASHINGTON DOME
HARRISBURG DOME
VOLCANO MTN.
SAND MOUNTAIN
WARNER VALLEY
WARNER RIDGE
BIG SAND
LAVA RIDGE
CEDAR BENCH
SANTA CLARA BENCH
PAIUTE INDIAN RES.
WHITE HILLS
BLOOMINGTON
HURRICANE MESA
BLACK RIDGE
TOBIN BENCH
BEAVER DAM
Ivins
Veyo
Cottonwood Canyon
MILES
UTAH
1
2
3
4
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6
7
8
9
10
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12
13
14a
14b
14c

Figure 18. Location map showing the southwest corner of Utah. Depicted are locations of sites and research areas pertinent to the study of the Red Cliffs site.

1. Gunlock Reservoir sites
2. Three Mile Ruin
3. Goosenecks Overlook
4. The Reusch Site
5. Giles Site
6. Frei Site
7. Dixie Project Area
8. LaVerkin Springs Project Area
9. Navajo McCullough Transmission Line
10. Allen-Warner Project Area
11. Quail Creek Project Area
12. Little Man Sites
13. Little Creek Mountain-S.U.S.C. Field School
14. Virgin River Inventory-BLM

    a. Atkinville Section = VRI
    b. Land Hill Section = VRLH
    c. Gunlock Section = VRG

This section briefly outlines what has gone on before in the way of archeological research, and indicates the scope of what is going on at present (Fig. 18). The focus of the section, however, is mainly restricted to the St. George Basin and closely surrounding areas, so this is not to be taken as a thorough review of the Virgin Branch literature.

The earliest investigation into the archeology of the lower Virgin River drainage in southwestern Utah was made by Dr. Edward Palmer in 1876. His primary objective was to provide artifacts for the Smithsonian Institution to display at the 1876 Centennial Exposition in Philadelphia. Palmer "excavated" a mound near Santa Clara. An account of the excavation and catalog of the collection has been provided by Fowler and Matley (1968).

Neil Judd (1926) comments briefly on his inquiries near St. George for the Bureau of American Ethnology in 1915. He was led to believe that little of interest remained undisturbed in the area and quickly moved on to conduct investigations in Kane County.

Early in the 1930's J.E. Spencer (1934) surveyed portions of the Virgin River from Zion Park downstream to the Utah-Arizona border and also up the Santa Clara River. He noted that the bottom lands of the Santa Clara and the Virgin were said to have possessed a number of mounds now swept away by extensive lateral cutting of the rivers. Spencer's contribution to the study of Virgin River archeology was a collection of sherds classified into thirteen ceramic types. By so doing Spencer demonstrated a local Anasazi sequence of ceramic types roughly analoguic to those east of the Colorado River and which ranged from the early Pueblo I period (A.D. 750) into Pueblo III (ca.A.D. 1150).

During the 1920's and 30's numerous excavations along the Muddy River and lower reaches of the Virgin River in Nevada were reported by Shutler (1961). Based on this work the Gladwins (1934) proposed the name Nevada Branch for the Anasazi of Nevada and the adjacent area in Utah.

Colton (1952) felt that a centrally located geographic name would be more appropriate and suggested the term Virgin Branch be used "...to include the prehistoric cultures found on the Northern Strip of Arizona, in Southwestern Utah west of the Colorado River and in southern Nevada". With this definition, Colton went on to organize Spencer's ceramic types into a sequence he called the Virgin Series and developed additional ceramic sequences for local variants observed elsewhere in the Virgin region.

Schroeder (1955) summarized the work Ben Wetherill and Elmer Smith conducted in Zion National Park in 1933 and 1934, the first scientific excavation effort for the Virgin River drainage in Utah. The report provides good architectural and artifactual descriptions from 12 sites ranging from Basket Maker to Developmental Pueblo. Wetherill and Smith provided a brief but interesting account of their work in Zion-Bryce Nature Notes Jan.-Feb. 1934.

In 1949, University of Utah researchers Jack Rudy and Robert Stirland (1950) initiated the Universities Statewide Archeological Survey with a survey of two Bureau of Reclamation reservoir sites near Virgin City and Gunlock. Apart from the emergency salvage nature of their investigations, their goal was to "...present the general problem of the relationship of the Virgin River drainage area to the total Southwestern region."

Eventually, four sites were excavated at Gunlock Flats (Fig. 18) resulting in a sound description of late developmental settlement along the Santa Clara River (Day, 1966). During the interim a modicum of excavation data was gained through highway salvage work at the Giles Site and testing for the Utah State Park and Recreation Commission at the Frei Site (Pendergast, 1960).

During 1962 and 1963 seven sites in southwestern Utah were excavated by the University of Utah in order to provide comparative data necessary for the understanding of cultures then being studied as a part of the "Glen Canyon Archeological Salvage Project." Apart from these needs, the Virgin culture area in itself was deemed in need of further study. Four of the seven sites were located within the hot desert/riverine environment with which this review is mainly concerned. They include (Fig. 18): Three Mile Ruin, 42Ws50; Goosenecks Overlook, 42Ws172; the Reusch Site, 42Ws173, and Parunuweap Knoll, 42Ws200 (Aikens 1965).

The foregoing sites provided much of the data supporting Aikens' (1966) study entitled "Virgin-Kayenta Cultural Relationships". Notably, despite the extreme dryness of the middle Virgin Valley which he believed would demand some form of irrigation, he did not believe that local environmental adaptation was a strong force in cultural differentiation between either the upland Virgin population or the Kayenta (Aikens 1966, 54).

Figure 19. View east along Quail Creek from site ridge.

Since the mid-1970's, "clearance"-related inventories, mandated by legislation and necessitated by the requirements of an expanding population, have dominated the efforts of both public and private archeologists in the St. George Basin. Since the placement of full-time BLM Archeologists in the Cedar District, in 1975, several thousands of acres have been intensively inventoried in and adjacent to the St. George Basin and several hundred sites recorded, thus greatly strengthening the data base. However, save for an attempt at rather low-level probability sampling (Wikle, 1978), most of the data are to be found only in site forms or BLM Files.

Since the completion of Gunlock Reservoir other proposals for water development have spurred archeological investigations. Inventories for the Dixie Reclamation Project (Hall, 1970) and the LaVerkin Springs Project (Thompson, 1978) demonstrated a predominantly puebloan (Pueblo I to late Pueblo II) occupation. Power demand, too, has led to an accumulation of archeological data, as witnessed by work done in conjunction with the Navajo-McCullough Transmission Line (Moffit, 1978) and the Allen-Warner Project (Thompson and Thompson, 1974).

Addressing both water and power needs, as well as recreation, the recently completed Quail Creek Reservoir Project constitutes the most intensive excavation effort to date along the middle reaches of the Virgin River (Walling, Weder and Thompson, n.d.). The project area (Fig. 18), located at the confluence of Quail Creek and the Virgin River, is only a few miles from the Red Cliffs Site. Apart from the late Southern Paiute occupation, the sites ranged from Pueblo I to late Pueblo II.

Two miles upstream from the Quail Creek sites, on an oxbow bench in the Virgin River (Fig. 18), four small Pueblo I and Early Pueblo II household units, each with habitation and storage facilities, have recently been excavated (the "Little Man" Sites). This was done under cooperative arrangement between BLM, S.U.S.C. and a proponent who desired long-term use and development of a tract of land that directly involved the sites. Said arrangement has since fallen on hard times, leaving both BLM and S.U.S.C. holding portions of the well-known bag. It now appears, however, that the situation may be recovered and the results of the work published, hopefully in the near future.

While actually in an uplands situation, special mention must be made of the on-going work directed by Richard Thompson on Little Creek Mountain, an area just above the St. George Basin on the east (Fig. 18). Since 1978, inventory efforts (Heid 1979, 1982) have accounted for some 500 sites on about 60% of the available mesa top, while the S.U.S.C. field school has excavated four sites (Thompson 1980, 1981; Wise 1982, n.d.) and is currently involved with a large site planned for several years attention. The amount of additional information forthcoming from these efforts will be considerable.

A final piece of on-going work that should be noted also seems to carry considerable portent for the future of archeological inquire in and around the St. George Basin. BLM Archeologists are currently involved in an inventory effort designed to account for all remaining federally controlled Anasazi sites on the Virgin River system below Zion National Park. This is well along, probably within a year of completion, and preliminary results are more than a little disconcerting. There is at this writing a decent sample of sites extant - but there is not one site more than that, and if the current level of vandalism continues unchecked, the research and data base will be gone in less than 20 years.

EXCAVATION AND STRATIGRAPHY

Project History and Chronology

The Red Cliffs Site had been generally known for some time prior to the initiation of the project here reported. Pertinent to this particular recounting is that the site was evaluated for BLM in 1962 by Richard A. Thompson, Southern Utah State College, under an existing designation of 42Ws503. There are actually indications that the site has been recorded two or three times, not an unusual circumstance in the days of non-coordinated inventories and records, and mediocre maps and mapping. As Ws503 was the best record available, that designation was used for the present project to control site, artifact, and accession records.

As it happens, Dalley was a student at S.U.S.C. in 1962 and was with Thompson when the site was evaluated. Dalley returned to the area in 1975 as Cedar District BLM Archeologist, and as one of his first duties was assigned to do a Cultural Inventory of the Red Cliffs Recreation Area. Of course this entailed a visit to Ws503, which appeared to have taken some vandalism abuse since 1962, and which further seemed to indicate, partly by virtue of its condition and position, some opportunities for advancing the fortunes of the fledgling Cultural Resources program in the Cedar District.

First, there seemed with this particular site an opportunity to involve the program in some limited excavation, with a view to beginning a serious effort at making a contribution in a poorly known archeological area. More importantly, the research via excavation could, in this instance, be tied to other more traditional Bureau programs that carried some funding. Secondly, the then director of the Youth Conservation Corps (YCC) program was very interested in finding stimulating and out-of-the-ordinary projects for his summer crews of 15 to 18 year olds. Finally, by being adjacent to a well-used recreation area, the site was viewed by the Recreation program as suitable for limited development and resource display. Thus, a deal was struck to initiate a project of limited excavation, using the YCC crews, with a view also to some subsequent stabilization and use of the site as a visitor attraction.

The idea of a "limited" excavation was not particularly a bad one; at least it was fully commensurate with the very limited support resources available to the BLM Archeologists at the time. It was, however, predicated on an initial "reading" of the site that was substantially in error. There was no intention at the outset of attempting to deal with the amount of archeology that is here reported. However, once the site was opened, so much became involved so quickly that it took two seasons to get to a point that the excavators could disengage with some degree of poise. In part, the poor reading was due to the excavator's relative inexperience in dealing with surface manifestations in the area, but in good measure it was due to substantial portions of the site being extremely well-disguised. There was nothing on the surface to indicate the presence of the Area B phenomenon (see below), and there was no real reason to think Area A would develop as it did.

Beginning in late June, 1977 Dalley and McFadden ran the excavations for an initial five weeks using the YCC people, when available, plus a few BLM employees for a day at a time, mainly for orientation purposes. As the summer wore on, it became necessary for the BLM Archeologists to tend to other duties, and an arrangement was made to have Thompson and one of his students, Jan Sivley, take the site for a month with a view to finishing exposed features and closing the excavation phase. However, in an attempt to delimit the west area of occupation in Area B, they ran afoul the big cists (see below) and were unable to complete other areas.

The site was allowed to "rest" for a year before Dalley and McFadden returned in late June, 1979, and put most of six weeks into carrying the open areas and partially exposed features to completion. This was accomplished by opening not one centimeter beyond what was already exposed, even though it was quite obvious by that time that only part of the site history was being extracted, even for the relatively large areas opened in Areas A and B.

The site was, therefore, closed following the second season with some surety that we only had part of the story. This has, to some extent, been confirmed by what has been seen in the general area during the intervening years, both from extensive inventory work and in several excavations. Unless Red Cliffs is quite anomalous, it "owes" us several pit houses for the Area A and B occupations seen to date, and there appears good reason to believe that we have not seen the last of the site north of the north excavation limit (Figs. 21,22). Hopefully, these speculations can be checked by additional excavations sometime in the future; they could not with conscience be pursued before the outstanding reporting debt was paid.

Immediately following the close of the 1979 excavations, a site plan was designed by Lou Bechtold, BLM Landscape Architect, that included ramada-type structures for covering several of the better preserved storage units, plus an internal boardwalk for viewing access and that could eventually be tied to site access trails. The ramadas and the boardwalk were built by YACC (Young Adult Conservation Corps) crews over the winter and spring of 1979-80.

In the fall of 1980, over about three days, a five-person BLM team stabilized all amenable and exposed structures on site, with particular attention to those under cover and intended for long-term display. The team was headed by Rich Fike, USO Archeologist, an individual well experienced in stabilization projects; excellent "mud" support was provided by Tab Nelson, the YACC crew chief who previously supervised ramada and boardwalk construction. Other team members, all novice to such undertakings and receiving intensive on-the-job training, were Dalley, McFadden, Heidi Roberts, then with the USO Cultural Resource program, and Chas Cartwright, then with the Salt Lake District.

Since the close of excavations, there have been several attempts at beginning a descriptive report on the project. Until recently, however, these amounted to no more than false starts and very little was done with the material and data. The BLM project workload has been consistently heavy since 1979, particularly since chaining was reinstated at about that time, and it has been difficult to block out any appreciable analysis or writing time. Finally, for the 1984 fiscal year, it was possible to program time specifically for a report on Red Cliffs; this helped get things started, but it did not make

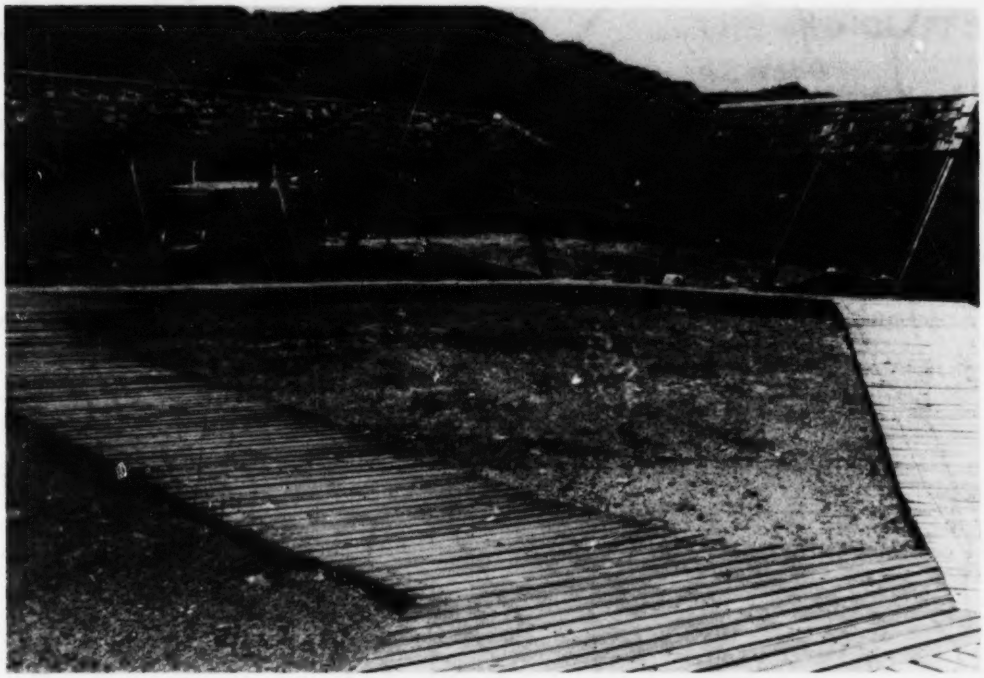


Figure 20. Boardwalk and ramadas on stabilized site.

other work commitments go away, and only a partial draft was resultant. In 1985, additional time was programmed for the effort along with use-or-lose publication money, other work was juggled more effectively, and the present volume was finally produced. It is hoped that the effort will, in some measure, be found justified.

Methods and Project Notes

Prior to the initiation of excavation, the site was contour mapped using a plane table and alidade; surface observable site features and areas of disturbance were also mapped at this time. However, the mapping effort reflected the excavator's initial bias relevant to site and project size, and the original contour map extended south only to the edge of Area B. This situation was not rectified before Area B was opened and excavated to the point herein reported, but it has since been possible to force-in the balance of the contour map using low-level aerial photography available for the Recreation Area.

A site datum was established, also, at the time of initial mapping and skeleton provisions for a site grid established. As indicated in the following paragraphs, however, a grid system was not used to control the excavations. This simply reflects the excavators preferences, at least for this type of site, to trench, expand as needed, control site phenomenon with a feature system, and map with an instrument. This as opposed to being forever entangled in stakes and strings.

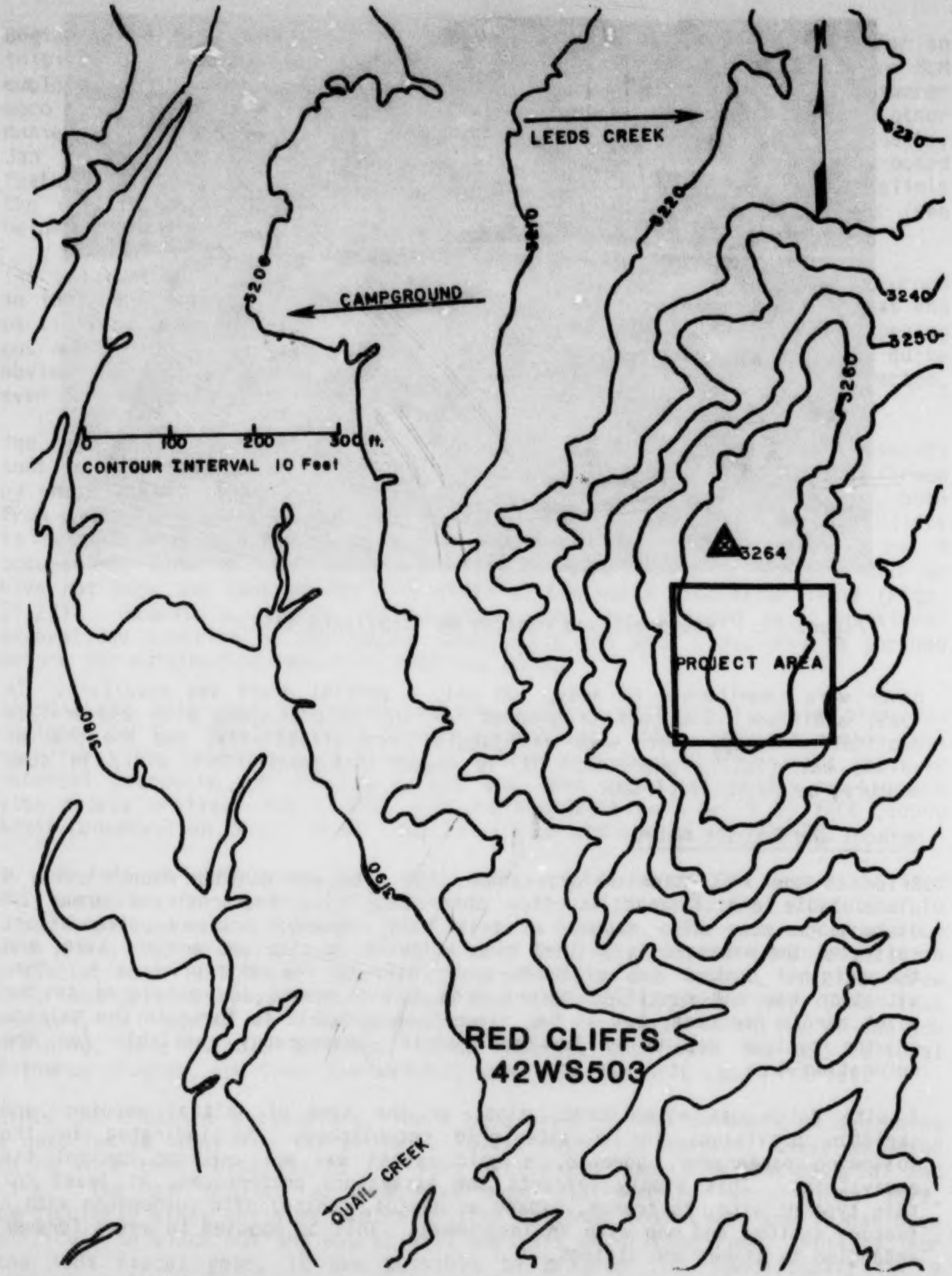

N
LEEDS CREEK
3230
3210
3220
3200
CAMPGROUND
3240
3250
3260
0 100 200 300 ft.
CONTOUR INTERVAL 10 Feet
3264
PROJECT AREA
3190
3190
RED CLIFFS
42WS503
QUAIL CREEK

Figure 21. Contour map showing definition of the site ridge and immediately surrounding areas.

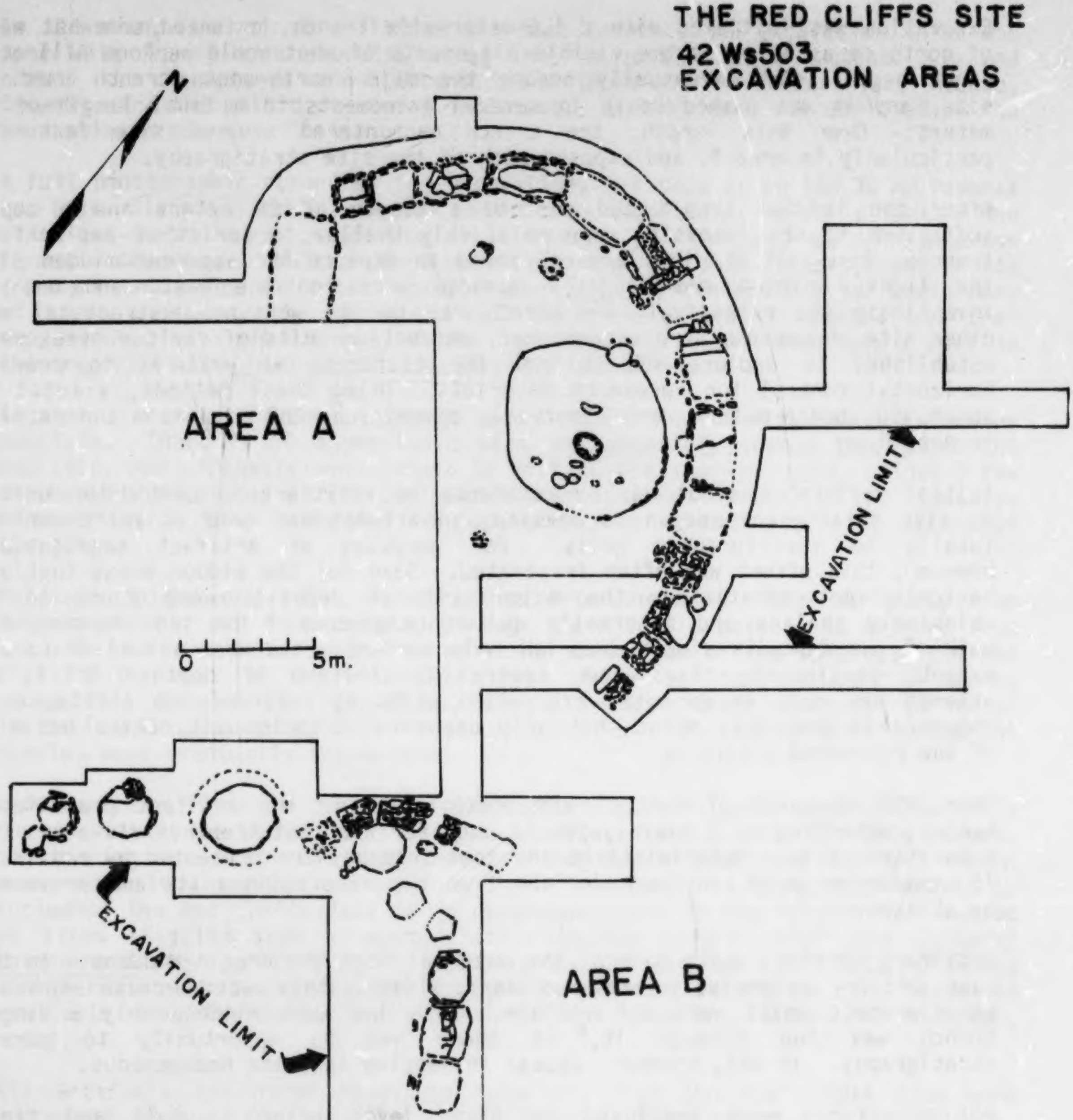

THE RED CLIFFS SITE
42 Ws503
EXCAVATION AREAS
N
AREA A
EXCAVATION LIMIT
0
5m.
EXCAVATION LIMIT
AREA B

Figure 22. Map showing Areas A and B and areas of excavation. Non-detailed features shown.

Excavation was initiated with a 1.6-meter-wide trench, oriented somewhat west of north so as to cross the visible alignments of what would be Room AI11 at a right angle. This eventually became the major north-south trench used on site, and it was pushed south in several increments to a final length of 50 meters. Over this length, the trench encountered several site features, particularly in Area B, and exposed much of the site stratigraphy.

After the initial trench had reached a length of 28 meters and a depth sufficient to show deposits were relatively shallow, a series of exploratory trenches were run at right angles, three to explore the apparent midden plus the lightly potted and slightly mounded areas on the east, and one to investigate the extensively disturbed area to the west. As structural and other site phenomenon were encountered, excavation units of various sizes were established to explore and control the features, as well as to provide horizontal control for recovered materials. Using these methods, a total of about 450 square meters were eventually opened, ca. 280 in Area A and ca. 170 in Area B.

Initial vertical control was by reference to arbitrary 15 centimeter units. As site stratigraphy began to develop, an attempt was made to shift control totally to stratigraphic units. For purposes of artifact segregation, however, this effort was often frustrated. Save for the midden areas that are basically not stratified, the major cultural deposits were found to be relatively shallow and internally quite homogeneous. The sand forming the bulk of the deposits simply does not hold surfaces, and when walked on to any extent, continually mixes over several centimeters of depth. Still, an attempt was made to work the excavation units by reference to strata, even though this generally meant that only one stratigraphic unit controlled most of the recovered artifacts.

Thus, for purposes of control and presentation in the artifact provenience tables, something of a dual system is used for the test trenches vis-a-vis the excavation units. Materials from the test trenches are presented by arbitrary 15 centimeter units, while materials from the excavation units are presented by stratum.

Arbitrary vertical units control the material from the Area A Middens. In the case of the extensively explored east midden, this was because workable stratigraphic units were not visible. With the west midden, only a single trench was run through it, so there was no opportunity to pursue stratigraphy. It did, however, appear in section as quite homogeneous.

All structures were sectioned to floor level prior to full and final clearing. While sometimes quite informative in terms of construction, collaspe, and fill detail, most of the structures yielded so little in the way of cultural material that only "fill" and "floor contact" segregations were retained for artifact provenience control. Further, most of the later storage rooms were quite shallow and showed only sandy clay and rock as fill over the floor surface. Where multiple floors were encountered, as was the case with several storage units, the lower surfaces almost invariably showed no cultural materials at all.

In the main, removal of soil from the test trenches and excavation units was done with square-nose shovels, using the horizontal "skim" method. In and around the structures and features, and elsewhere as detail was needed, trowels were the main dirt-moving implement. Screens were not employed in the excavation process.

A full photographic record of the excavations was made using two 35 mm cameras to take black-and-white record shots plus duplicate color slides. The black-and-white record from the first season is, however, put in generous terms, rather poor. Whether from poor technique or other factors, most prints are dark and muddy and not of publishable quality. This situation could not, of course, be entirely recouped, but the architectural record has been supplemented with photographs of the structures as stabilized; where used in this report, such pictures are specifically identified.

Samples for radiocarbon analysis were taken, quite literally, wherever possible. Charcoal of appreciable size was amazingly scarce throughout the deposits, and virtually nonexistent in most of the storage rooms. Since a few thumbnail size pieces of charcoal were taken as a real prize, it can almost go without saying that there was no opportunity to attempt tree-ring dating of the site.

Pollen samples were taken as scrapings from the clay floor surfaces, from defined strata, and from columns through the midden deposits, as well as from the site surface and from the surface and subsurface of the sand sage covered flat to the west of the site (Fig. 15). There was some laxness in taking gross fill samples for flotation, partly because there appeared to be so little carbonized material in most of the deposits, but a fair number of samples were eventually accumulated.

Unfortunately, for one reason or another, it has not been possible to fully pursue either the pollen or flotation analyses for inclusion in this report. Considering the status of environmental and subsistence data for the Virgin area, this is a serious omission and one that there is intent to rectify by including the Red Cliffs data in an upcoming report on the "Little Man" series of sites (Fig.18) from a nearby locale on the Virgin River (See Cultural Environment above). This should actually enhance the Red Cliff data by adding considerable substance; further, comparative data should by that time be available from the large Quail Creek project (Walling, Weder and Thompson, n.d.).

All artifacts and other recovered materials from the Red Cliffs Site were processed through the laboratory facilities at Southern Utah State College, and will remain there under curation agreement. Notes, photographs, maps, etc. are in the Cultural Resource permanent files at the Cedar District Office, BLM.

As indicated by the section heading, there are a few notes relevant to the project that do not fit particularly well elsewhere, but that may be of some interest. There is not a separate section on stabilization, so a short outline is presented below. Otherwise, the notes are somewhat introspective but basically intended to inform and perhaps provide a little helpful advice to others that may sometime work the area, or become involved in similar undertakings.

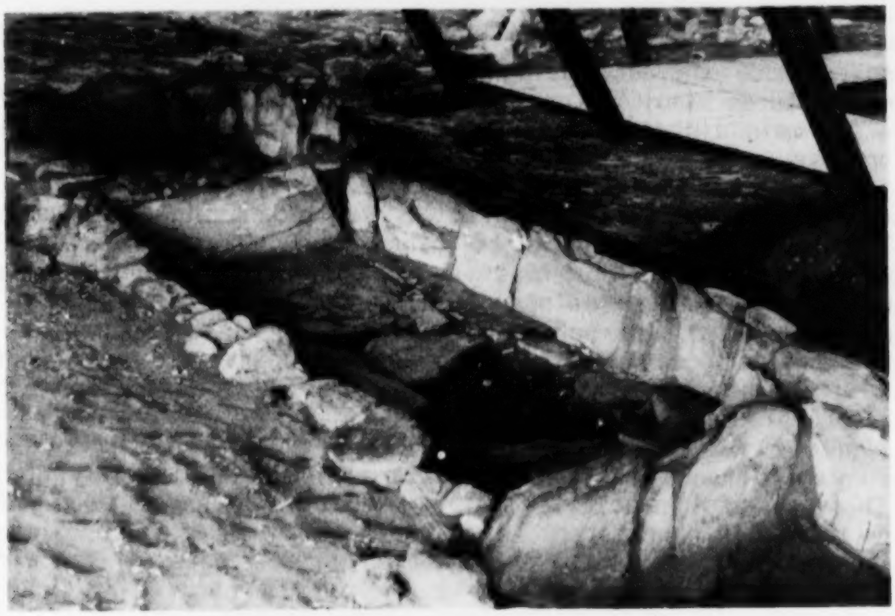


Figure 23. Stabilized room (AI11) under ramada protection.

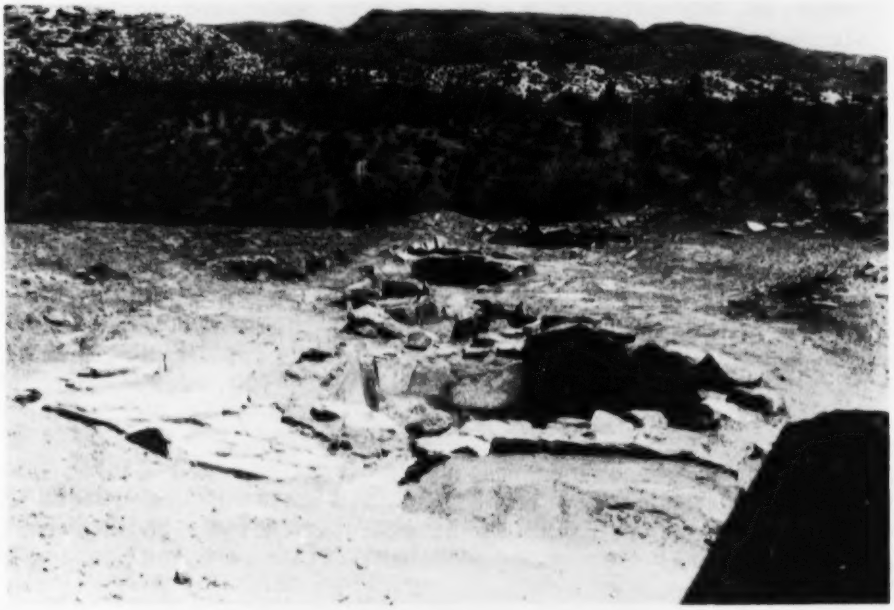


Figure 24. Portion of Area B, stabilized but not protected

First, for those interested in such matters, the site features were stabilized using a 5:1 soil cement. Spoil from the excavation was used without the addition of stain, and when possible, without screening. This produced a final product slightly lighter in color and more cement-looking than might have been optimal, but overall it does not look too bad. Once in place, fresh mud was stippled with a trimmed whisk broom and sprinkled or pelted with sand; it was then allowed to dry without further treatment. Only where absolutely necessary for stability or to produce a cap seal were foreign stone introduced to a structure; although, there was a more liberal use of rocks when bracing areas that would be below the displayed surface. Overall, the stabilization has held up to the elements surprisingly well, and has taken only minimal incidental damage. Although damage did include a cookout in the biggest (B4) cist using planks from the boardwalk for fuel.

As regards planned stabilization, however, with some perspective now at hand, plus a report in hand that could use more detail on site sequence, it is viewed as a fairly serious mistake to have started the site with an intention to eventually stabilize and display. This had the effect of making the excavators quite tentative about tearing structures apart to get at construction detail. There have since been seen several examples that indicate the Virgin people were both persistent and quite ingeneous in remodeling and piecing together room blocks. Specific to the Red Cliffs Site, it is quite probable that good evidence for a major realignment in Room Block AI was missed simply by holding short of cutting through a couple of rooms.

Use of the YCC crews worked reasonably well. The kids had to take about maximum abuse from the heat because of their work schedule, but generally they held up fairly well. Most were willing workers, but only a couple ever showed much real interest.

Previously it was noted that the site was badly underestimated initially, and as a result came close to getting out of control at several junctures. This issue is raised again, not for reasons of masochism, but because it is apparently quite pertinent for the area and future workers should be alert to a potential problem. Several times since Red Cliffs the authors have seen contractors underestimate sites, and while this is certainly not something that never happens elsewhere, it seems rather exacerbated in some local areas. The earlier sites, in particular, are limited in artifacts to begin with and most sites have just been picked-clean of informative surface artifacts. Sites seem to generally level out and disguise themselves very well, rather than retain depressions, etc. Further, there seems a strong tendency for Virgin sites to be reoccupied as well as older features reused to some extent. With a general lack of surface debris in the first instance, it is thus almost impossible to infer the presence of earlier components.

Finally, for those from more temperate climes or who have not otherwise had the pleasure, the project notes are closed with one simple piece of advice: Don't dig in the desert in the summer. The heat robs you of strength and time and the sun makes you stupid in the head. There may be no better way to nearly make a living than doing field archeology, but there is no need to be foolish about it, and rooting in the sand or squinting at a notebook when it's 110°F. under the nearest creosote is neither smart nor productive.

Site Stratigraphy

As alluded to in the Methods section, above, site deposits are relatively shallow and stratigraphy is not particularly complex, at least insofar as could be abstracted during excavation. That is not to say that there is no complexity involved with the site. Rather, the building and occupational sequence is quite involved and appears to have gone on, at least sporadically, over a long period of time. Under the right conditions, that sort of long-term activity would be reflected in substantial and separable cultural deposits. Here, however, save in a few instances, culture deposits seem to have homogenized in areas of heavy use. Thus, over only a few tens of centimeters of depth, there just was not that much to work with. Logically, it should be possible to present one-to-one relationships between events or series of events and stratigraphic units; operationally, it seems seldom to work that way.

Nonetheless, the stratigraphic units recognized for the site are central to understanding site history and development, and they are presented below in some detail. Because of the separation between Area A and Area B (see Spoil Component, this section), two more or less parallel series of strata are discussed. While similar in content and internal relationships, these control different events and somewhat different time sequences and are not totally duplicate records.

Stratum A1 is a thin layer of wind-blown sand apparently covering most of the site, but generally so thinly that it often was not noticeably separable from the underlying sand of Stratum A2. The sand was particularly evident as a separate unit over and around the rooms at the west end of Room Block AI, one of the later portions of the site. Here it reached a maximum thickness of ten centimeters and could be separated cleanly from the A2 material, or in some cases, directly from room fill or wall fall. It is a dull yellow-brown in color and is taken to be a post-occupation deposition, although it contains minor charcoal flecking and a few artifacts.

Stratum A2 is the general cultural and occupational stratum in Area A. When slightly damp and in direct light, it has a dark, distinctly reddish color; when thoroughly dry, it has a grayish cast and a rather washed-out appearance - a common and rather frustrating characteristic of all the sandy strata seen on site. The stratum is generally only lightly charcoal-flecked and was not a heavy artifact producer. It is thickest near the storage rooms, particularly so to the front of Rooms AI7 and AI8 where it measured up to 40 cm. (see Stratum A2a, below, however). South of Room AI1, it was only 5 to 8 cm. thick where it lay on Stratum A5 gravels; in the long trench connecting Area A and Area B it was generally no more than 15 to 18 cm. thick, thinning to the extent that it could not effectively be carried into Area B. It was generally cut-off from Midden AI by the line of storage rooms, at least it did not clearly carry across; Midden A2 appeared as simply a matter of thickening and darkening of the stratum. The stratum provided upper fill for several of the rooms in the central portion of Room Block AI, but did not cover several of the end rooms (see individual room descriptions). Most of the Area A constructions originate somewhere within this stratum.

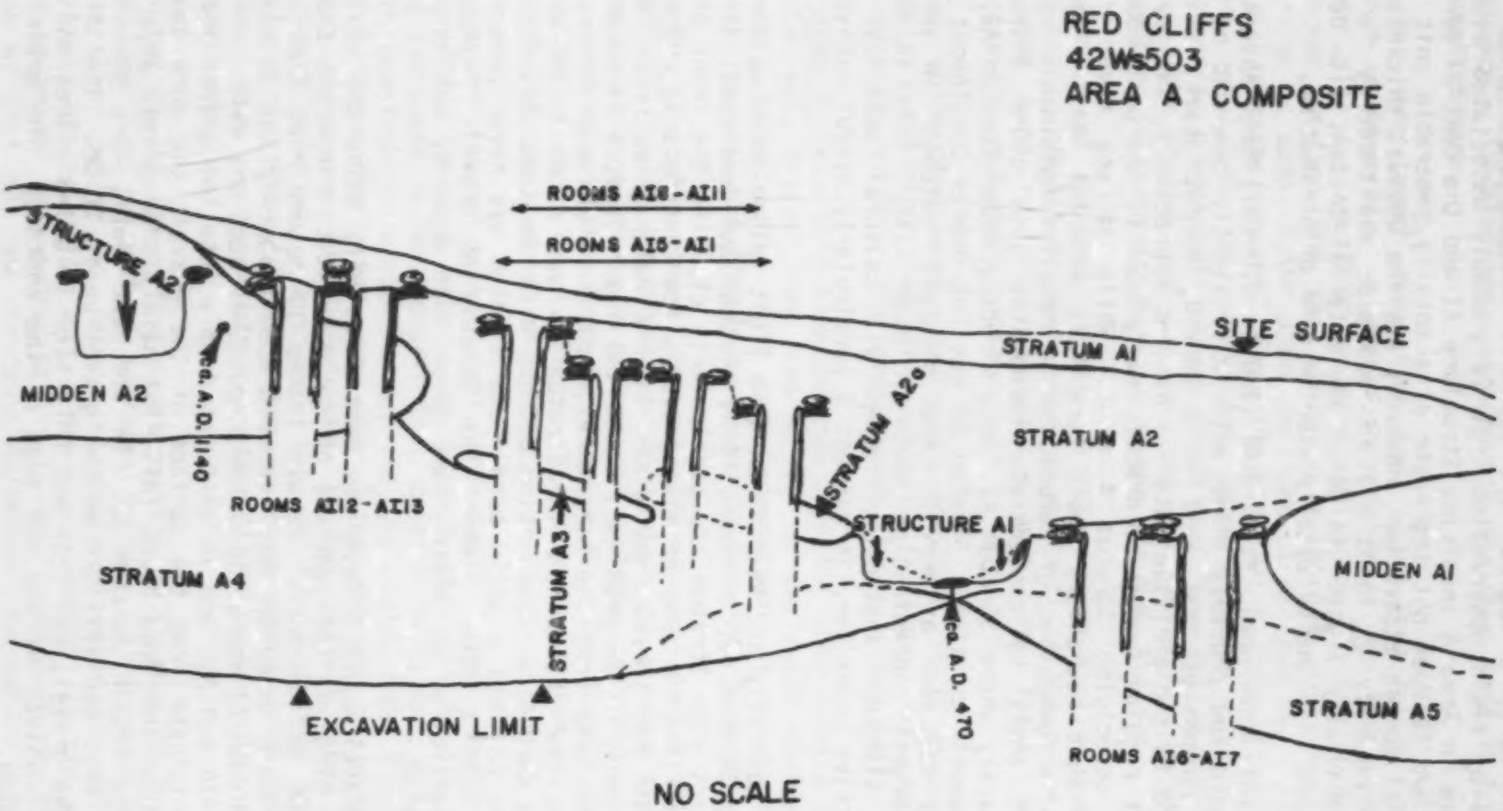

RED CLIFFS
42Ws503
AREA A COMPOSITE
ROOMS AI8-AI11
ROOMS AI5-AI1
STRUCTURE A2
MIDDEN A2
ca. A.D. 1140
ROOMS AI12-AI13
STRATUM A4
STRATUM A3
EXCAVATION LIMIT
STRATUM A2a
STRATUM AI
SITE SURFACE
STRATUM A2
STRUCTURE AI
ca. A.D. 470
MIDDEN AI
STRATUM A5
ROOMS AI6-AI7
NO SCALE

Figure 25. Schematic, composite profile of the major stratigraphic and structural relationships in Area A.

Stratum A2a is, in part, a logical and somewhat necessary construct only partially confirmed by field observation. It is probably associated with an early building phase in Area A involving Structure AI and the central portion of Room Block AI, but it does not segregate as a totally separable unit from Stratum A2. Observed during excavation, however, was the unusual thickness of Stratum A2 in the vicinity of Rooms AI7 and AI8 plus the tendency for the stratum to become gradually lighter in color and material content with depth, finally simply grading into the culturally sterile sand of Stratum A4.

Stratum A3, where well-developed, is a thin (1.0 to 4.0 cm.) band apparently composed of fine sand and probably other materials, lightly cemented by high concentrations of carbonates that lend it a marked, almost stark, whitish color. When exposed to the air, the material hardens appreciably, the surface develops a somewhat regular system of cracks, and pieces of the band come up cleanly from the underlying Stratum 4 sand. While it was never fully understood exactly what mechanisms would turn this material into a solid, discrete band, the accumulation of carbonates is readily explainable by the tendency of desert soils to concentrate carbonates just under disturbed areas. That is exactly where Stratum A3 lies, directly under Stratum A2, the primary cultural deposit on site. Stratum A3 was not nearly continuous over Area A; rather, it was seen as more or less discrete "patches" in several areas, with the largest concentration south of Room AI1. This is not a cultural stratum, although apparently formed via cultural activity, and despite its distinctive character, it was not a particularly useful excavation tool.

Stratum A4 is seen generally and when fresh as a light yellow sand, culturally sterile, underlying Stratum A2, or where it is present and developed, Stratum A3. Where in contact with Stratum A2, particularly close to the front of the structures there was often a zone of mixing over a few centimeters, but never any indication that the stratum was other than a natural deposit. Where Stratum A3 was present, it covered very clean and light Stratum A4 material. In areas behind and away from the structures, and where Stratum A3 was not definable, the top few centimeters of Stratum A4 was often quite white, probably indicating carbonate accumulation but not with the same circumstances that turned Stratum A3 into a solid band. The stratum was never penetrated more deeply than half a meter. Where the Stratum A5 gravel is present, Stratum A4 sand overlies or at least rides up on that deposit, but it could well be under it, also.

Stratum A5 is a gravel deposit found in excavation only along the eastward margin of the site ridge at the juncture of the more level ridge top and the slope off the flank to the east. It was traced 10 meters down the gentle slope east of the south three or four rooms in Room Block AI; but it was not encountered under Midden AI where the midden deposit is deep and well-developed. Rooms AI6 and AI7 are in part cut deeply into the gravel and, in fact, appear to originate from the surface of the gravel; the more shallow rooms at the south of the Room Block (AI1-AI5) mainly show gravel under the floors but originate within Stratum A2. On the east slope, dark stain from overlying cultural sand had infiltrated the gravel up to 20 cm. The Stratum A4 sand overlies the gravel, but this was only seen in a few places and with only enough depth involved to see the edge of the contact. The gravel was never fully penetrated.

The Spoil Component is move relevant to Area B and belongs well down in that sequence. It also very effectively isolates Area B from Area A, so it is presented here.

In the long trench connecting Area A and Area B, at a point ca. 2.5 meters north of Room BI1, whitish, sandy material was encountered only 4 or 5 cm. under site surface that appeared similar to Stratum A3 but lacked the marked, cracked surface and the tendency to harden when dry. Thus, it was more similar to some of the upper portions of Stratum A4, a clean sand with a very high carbonate content. From the high point, this material was seen to slope down gently to the south and somewhat move sharply to the north. As excavation progressed, it was found that substantial portions of the units in Room Block BI had been cut into and built over this material, but nowhere did it extend to the north margins of the big Area B cists.

The material was not totally isolated horizontally; vertically, enough was exposed to show that there were no cultural strata below. Rather, only light colored sand representing Stratum A4/B3 was found, but in a matter of graduation, not sharp contact.

Thus, while other explanations are possible, it is reasonable, economical and fairly convincing that the material is sandy soil from the rather large excavations necessary for emplacement of the Area B cists.

Stratum B1 is a thin blowsand cap over the other Area B deposits. While only tentatively traced from Area A, it is the exact equivalent of Stratum A1. Nowhere particularly thick or concentrated, it nonetheless provided a very effective seal and disguising mechanism for Area B phenomena.

Stratum B2 is the general cultural and occupational stratum for Area B. It is similar in color and other characteristics to Stratum A2; although, as it was worked mainly close-in to structural context, rock and cultural debris content was generally higher than for Stratum A2. The Stratum was found to range in thickness from 15 cm. to 35 cm., and as with Stratum A2, tended, in places, to become lighter in color with depth.

As excavation progressed, it eventually became possible to identify two occupation surfaces within the stratum plus one at its basal extent. These are discussed in more detail in a section to follow, but generally correspond with construction/occupation of the big cists, Room Block B1, and Room Block BII. These "surfaces" are generalized and not observable in section; and since they were identified late in the project, they control very little cultural material. Thus only the portion delimited between the lower two surfaces is presented as a separable component, and then mainly because it shows some correspondence with Stratum A2a in position and other characteristics.

Stratum B2a is, then, the basal portion of Stratum B2 that (1) occurs between the lower two occupation surfaces defined for Stratum B2, and (2) shows as generally lighter in color and cultural material content than the upper portions of the major unit. Where best defined in the area between Cists B3 and B4 and on toward Cist B2, it is only about 8-10 cm. thick. Along the east side of Cist B3, the construction/initial occupation surface associated with

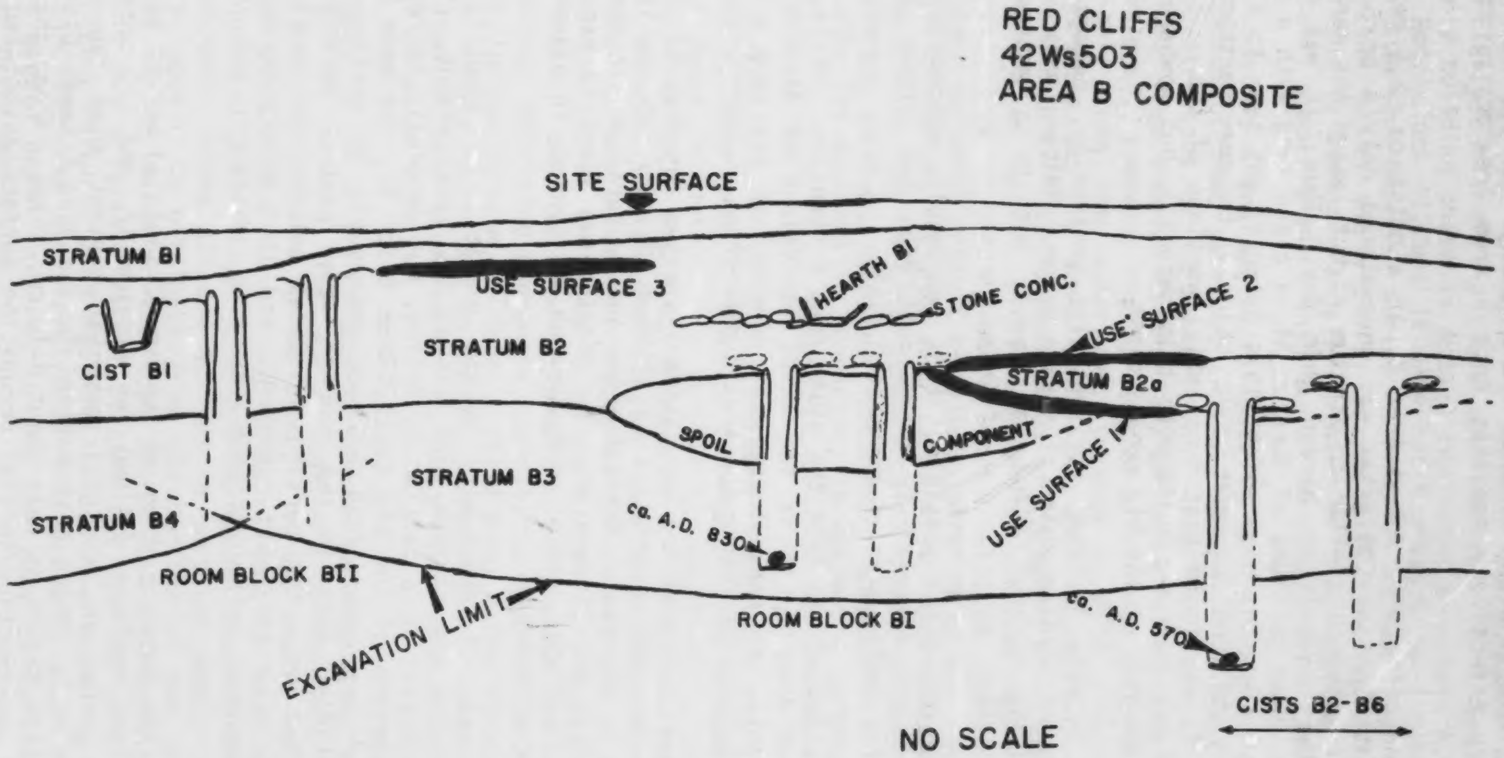

RED CLIFFS
42Ws503
AREA B COMPOSITE
SITE SURFACE
STRATUM B1
USE SURFACE 3
HEARTH B1
STONE CONC.
USE SURFACE 2
CIST B1
STRATUM B2
STRATUM B2a
SPOIL
COMPONENT
USE SURFACE 1
STRATUM B3
STRATUM B4
ca. A.D. 830
ROOM BLOCK BII
EXCAVATION LIMIT
ROOM BLOCK BI
ca. A.D. 570
CISTS B2-B6
NO SCALE

Figure 26. Schematic, composite profile of the major stratigraphic and structural relationships in Area B.

that large cist provides a crisp basal boundary; otherwise, there is generally a poorly defined zone of transition between Stratum B2a and the underlying sterile sands. More or less definable Stratum B2a may have been markedly thicker around the big cists on the west portion of Area B, but that area was completed the first year before strata and occupation surfaces were well defined. If present at all, the stratum is very minor west of Room Block BII.

Stratum A3 does not have an equivalent in Area B. There is whitish, apparently carbonate-rich sand present below the cultural strata, but nowhere is there the consolidated band with the characteristics seen in Stratum A3 in Area A.

Stratum B3 is the sterile sand underlying Stratum B2/Stratum B2a over most of Area B. It is very similar in color and other characteristics to Stratum A4, and is no doubt the same sand. The only places it was not seen in Area B were where the Spoil Component was not fully penetrated, and where the gravel of Stratum B4 is highest along the east and in apparent direct contact with Stratum B2.

Stratum B4 is no doubt the same gravel bar exposure noted as Stratum A5 in the Area A sequence. In Area B, it is seen only behind (east of) the Room Block BII rooms, under the floor slabs of a couple of these rooms, and under a very rapidly thinning Stratum B2 off the south end of Room BII1, the south limit of excavation. Thus, it did not play much part in Area B excavations and did not have to be dealt with to any extent.

CULTURAL AFFILIATION AND DATING

It is intended that this be a fairly brief section. What is specifically not intended is any in-depth discussion or debate on the reality or relevance of the Virgin Branch Anasazi. This is not meant to indicate either lack of interest or that there is no room for debate; rather, it simply reflects a desire to hold these issues in abeyance for another time and a different vehicle. There has been significant data accumulation from the Virgin area over just the past few years, and there is need for a thorough-going review and analysis. It is the intent of the authors and others to attempt such an undertaking, but not here.

What does need brief airing here, however, is at least an outline explication of the temporal/sequential framework the authors have come to use, and have found quite useful, as a working/discussion-level model for the chronological ordering of Virgin sites. The core of this is simply sets of clusters of architectural and ceramic traits that appear to hold together over fairly large areas and through at least appreciable time. This is viewed as essentially being within the Pecos classification system but witn emphasis on a definably local developmental sequence.

In short, there is a phase system trying to surface here, but the authors have not quite come to grips with it, and continue to use annotated Pecos terminology in a not wholly appropriate manner. That problem notwithstanding, presented below are some initial definitions, consisting mainly of trail clusters, but with some allusion to distribution, dating, etc.

So as to insure less than full commitment at this juncture, only the periods directly pertinent to the Red Cliffs Site are outlined, and then with the dual qualifications that on the one hand there is more substance to these than is here noted, but on the other, at least as compared to other Southwestern areas, they are still based on rather sparse data and poor temporal controls. An additional limitation is imposed by restricting data reference to southern Utah, the area the authors work on a day-to-day basis and where they are naturally most comfortable with the data base. Any full treatment of the ideas raised here will of course require substantial expansion to include areas of northern Arizona and southeastern Nevada.

Basketmaker III.

Dwellings: Small, deep, benched, slab-lined pit houses with shallow antechambers. Storage: Deep "round", cists of variable outline size, lined with dressed, vertically set slabs; often clustered or nested; exterior masonry not noted. Ceramics: Plain jars, often of warm, earthy colors but also commonly grays. Some variation in form and size; common and distinctive is a relatively tall vessel, somewhat egg-shaped, with a wide-mouth formed by a very long, slightly out-curving neck. Rims straight to slightly curved; lips often thinned, draw or "pointed". Bowls present but painted sherds often very rare; Lino B/G affinities marked. Site Plan: "Random", or at least not evident. Where on locally elevated ground, pit houses are often on the margins or actually on the slopes. Distribution: Widespread and relatively common. Seen in some abundance on Little Creek Mountain and north and east of

Kanab; perhaps somewhat less common on the Virgin. Some sites on the Shinarump Cliff line east of Kanab are exceptionally large. Dating: Poorly controlled by just a few C-14 determinations, but probably more or less within the A.D 500-700 frame of the general Pecos Classification.

Pueblo I

Dwellings: Pit houses generally of substantial depth and size; although neither particularly large nor deep, usually but not always benched and often but not always slab-lined; long, shallow, slab-lined ventilators noted for some examples; antechamber apparently not present. Storage: Relatively large, deep cists or rooms; fully lined, usually with large, vertical slabs; low exterior masonry walls present; outline variable from nearly round to elongate oval. Aligned in gentle arcs or curves, although individual units may be widely spaced rather than contiguous. Ceramics: Several sites have been recently excavated but complete vessels have not been recovered. Plain gray jars appear to be relatively small with necks and rims similar to BMIII examples, although shorter on the one hand and more noticeably out-curved on the other. It is thought the BMIII and PI rim forms segregate but they may overlap. Sherds show a very uniform ceramic product, light in color and consistent in paste and temper. Neck-banding either not present or very rare. Small lugs with cast holes are relatively common. Bowls show narrow-line designs, apparently sparsely applied (Washington B/G); unpainted forms apparently present. Designs show no particular affinities for Kana-a B/W, either in elements or layout. Site Plan: Pit houses occasionally essentially tied into storage room alignments, but often at quite a distance off one end or the other. Several instances seen of some sort of shallow, light, basin-shaped structure or use area, generally with a firepit, located on the interior of the arcs, immediately adjacent to the storage units. Distribution: Sites abundant and widespread, but in one instance, at least, highly localized. Common on Little Creek Mountain and along the Virgin; present but not common east of Kanab; a large concentration is found on the big points and benches above the East Fork of the Virgin vic. Mt.Carmel Junction, this in association with only BMIII and a few early PII sites. Dating: Several C-14 dates cluster in the 700's and 800's.

Early Pueblo II.

Dwellings: Pit houses of moderate size and depth, fully benched, and both slab-lined and unlined (or clay-lined). Some sort of ventilator/small antechamber arrangement on the southeast. Highly formalized floor plan, partly as a carry-over from earlier periods. Also sometimes found are light masonry, jacal, or ramada-type rooms "tacked-on" to one end or another of the storage room blocks. Storage: Storage rooms fully contiguous and aligned in arrangements from slightly curving to markedly "C"-shape. Individual rooms generally rectangular, consisting of relatively shallow slab-lined pits and low exterior masonry walls; pits walls and clay-over-stone floors tightly chinked and sealed, as in earlier periods. Ceramics: Some variation in utility shapes and sizes; very common is a smallish, globular, wide-mouth form with a very short neck and everted rim (Fig. 94). Bowls (St. George B/G) smoothed and polished but not slipped. Designs show some affinities for both Black Mesa and Sosi styles. Distinctive is a layout featuring a band of design running from one rim portion, across the bowl bottom to the directly opposite rim portion (Figs. 97,98). Corrugation is not present, nor are red wares. From areas east of Kanab, surface collections show from perhaps 40 to 80% Shinarump Gray. Site Plan: Storage and other rooms aligned as noted; pit house placement not obviously closely controlled, but seemingly more off one end of the room blocks than to the front. Middens better developed and off one end. Firepits and more or less definable use areas are just in front of room blocks; the little PI basins are not evident. Strong tendency noted for arcs to be oriented (open to the) southeast. Distribution: Widespread and relatively common. Dating: Available dates are rather scattered through time. May run to well after A.D. 1050. From evidence seen to date, a very well-defined and distinctive period, but as yet not well dated.

The view taken in the balance of this reporting is that the Red Cliffs site reflects substantial occupations from both the Pueblo I and Early Pueblo II periods, as they are outlined in the preceding paragraphs. This perspective can be seen to be in some trouble vis-a-vis the C-14 dates presented below, as well as regards some architectural definitions in the period definitions. The mean dates can be grossly seen as three too early, one too late, and two in reverse order from the early suite. One example specific to problems of architectural definition is that the big cists in Area B rather neatly bridge the characteristics outlined for Basketmaker and Pueblo storage facilities: big, deep, round, slab-lined individual constructions; but seen as aligned in a gentle arc and showing good exterior masonry. Nonetheless, it is felt there are ceramic considerations as well as other reasons to stay with the Pueblo I and Early Pueblo II interpretation. These will be addressed and other problems aired in the descriptive sections to follow.

The suite of Red Cliffs dates introduced in the preceding paragraph is presented here. It is a rather small suite for a large, complex site; only four determinations are reported:

1. 1480 ± 60 B.P., or ca. A.D. 470 (Beta-7351). This is from charcoal in the central hearth in Structure Al. The structure is seen as associated with an early core of storage rooms in Room Block AI. The core of rooms and the structure are viewed as representing a Pueblo I occupation and the date is therefore viewed as quite early.

2. 1380 ± 70 B.P., or ca. A.D. 570 (Beta-2688). This dates a small charcoal concentration from the clay floor of Cist B4, the larger of the big, apparently aligned cists in Area B. As noted previously in this section, the construction style shows elements of both Basketmaker III and Pueblo I, so the date may be only slightly too early. There is no stratigraphic tie between Cist B4 and Structure Al and its associated rooms, but on architectural grounds the rooms should date later than the cist.

3. 1120 ± 50, or ca. A.D. 830 (Beta-2689). This determination is from a small carbonized log on the floor of Room BI1. The log was closely associated with two restorable St. George B/G bowls (Figs. 97,98); the bowls and the log, however, probably came into the room as trash subsequent to the rooms abandonment and partial dismantling. Still, the association of log, room and ceramics is probably relatively sound. The bowls are characteristic Early Pueblo II - perhaps rather early, Early Pueblo II; and Room BI1 is part of the earlier of two Early Pueblo II Room Blocks in Area B. The date therefore, may be only slightly too early.

4. 810 + 90 B.P., or ca. A.D.1140. This is from a poorly placed, small sample of charcoal recovered at a depth of about 35 cm. below site surface in the test trench through Midden A2, the westward and later of the two trash deposits in Area A. Midden A2 is viewed as associated with the latest of the Early Pueblo II manifestations in Area A, so while the mean date is late, it is not totally out of reason.

While the suite of dates is not everything that might be hoped for, it is also not all that bad considering the variables that can become involved in trying to radiocarbon date relatively short-term events on open architectural sites. The dates do tend to confirm the view of a long-term occupation beginning and ending in definably different periods, and they tend to confirm internal stratigraphic and developmental relationship abstracted for Area A and Area B.

ARCHITECTURE AND RELATED FEATURES

Here are presented descriptions of the various nonportable, nonstratigraphic cultural features of intentional or incidental construction as encountered over the site. Included are storage rooms arranged in blocks of storage rooms, storage cists, habitation structures, outdoor firepits, middens, use or occupation surfaces, and one area of concentrated stone. In the sections to follow, and in the graphic and tabular presentations, the descriptive qualifiers "storage" and "habitation" are dropped, and the constructions involved termed simply rooms, cists and structures (but see the definitions following in this section).

The features are described under separate section headings, one for each of the two major excavation areas on site: Area A and Area B. The decision to present the site features in two parts (Fig.22) was actually not made until analysis and writing were underway. It then became even more evident than it had been in the field that the two areas were so tenuously tied together stratigraphically (see Site Stratigraphy, above), that it would be a constant exercise in futility trying to make the kinds of statements on feature interrelationships that should accompany this kind of reporting. Separating the areas and discussing the better understood internal relationships of each seemed the cleaner and more informative approach.

A few notes on nomenclature are in order at this juncture. Also, this seems an appropriate place to present some general observations on construction techniques, where such could be abstracted from the site features. Detailed descriptions, however, are mainly reserved for the sections to follow.

What have been termed and described as rooms and cists are seen as functionally the same features and, in general terms, show the same construction techniques. Both are interpreted as storage units and both can be described as roofed (probably), stone-lined pits with clay-over-stone floors.

The cists differ from the rooms most basically in shape and placement. The cists are essentially round in outline and found as isolated, individual units. They are also relatively deep in relation to outline size and are lined by large, nicely dressed slabs set on ends. Surprisingly (for reasons noted elsewhere), several show remnants of closely encircling masonry walls, set just outside of, and beginning just below, the slab tops. (Note, however, that a portion of the foregoing is most appropriate to the larger, earlier cists; two relatively minor constructions are carried with the cists mainly on the bases of form and placement.)

On the other hand, the rooms are closely set one-to-another in contiguous alignments, herein termed room blocks (Fig. 27). The rooms tend to rectangular (or oval or square) in outline form, and are generally less deep than are the cists. Pit wall lining is less consistent then seen in the cists, with a variety of slabs, rocks, and sometimes small areas of masonry utilized; where long, relatively narrow slabs are used, these are generally set on a long margin (Fig. 44) or "edge". Floors are similar to those in the cists in being tightly laid clay-over-stone constructions. The room floors do tend to be more varied in composition (Fig. 37), and it is fairly common to have two full, apparently serviceable floors in a room, one directly over the other (Figs. 34,37,38). In most cases, save particularly a few of the lighter units, exterior masonry walls are present or inferred from other evidence and are seen as characteristic; where good wall fall (Fig. 46) is present, six to eight courses can often be counted.

Noticeable with the rooms is that while they are contiguous, they are probably also still best viewed as individual units and not as compartments in larger units. Most often, the rooms show good evidence of having been tied-off at both ends, indicating they were built one at a time, as the need arose. Pit lining slabs do not tie across rooms, floors do not run continuously from room to room, "corners" are usually rounded and pulling in at room ends, and masonry is often seen between the rooms.

In common, both the rooms and the cists show great care in construction and detail and were rather obviously meant to be rodent proof and at least somewhat moisture resistant. It is assumed that roof coverings would reflect the same attention to detail, but since none of the units on site burned, there is very limited evidence available for reconstructing such detail. Obviously the exterior walls are meant to support roofing, and a flat or slightly sloped construction of light poles, brush, slabs and clay and dirt would seem appropriate. However, other than a great deal of clay fill, plus some "stray" slabs in the fill, there is no direct evidence to support this.

The two structures reported for Area A (Figs. 27,28) are both taken to be habitations. These bear no resemblance one to the other, except that both contrast sharply with the care and detail seen in cist and room construction. Structure A1 apparently associates with the earliest occupation in Area A, while Structure A2 is probably the latest construction in the Area A sequence.

The outdoor firepits are small constructions apparently meant to contain and control fires and were possibly used for both cooking and comfort purposes. Most involve a stone-and-clay-lined pit and evidence some care in construction; most, however, were in poor repair when exposed by excavation. All are "outside" structural context, and the majority are seen as simply scattered over the occupation areas interior to the room blocks. Two examples, however, are against exterior structural walls, but use contemporaneous with either involved structural unit is not necessarily demonstrated.

Middens (Fig. 27) are viewed as fairly well-defined and purposeful areas of trash accumulation, as opposed to the random and incidental accumulations of debris over the areas of intensive occupation and activity. While viewed as more or less separable, they are actually just adjacent to the structural and activity areas, and a substantial portion of Midden A2 eventually became involved by expansion of the adjacent room block (perhaps an early example of poor zoning?).

Reference is here made to material presented under Area B, below, for detail of the better work done on site with the rather elusive use/occupation

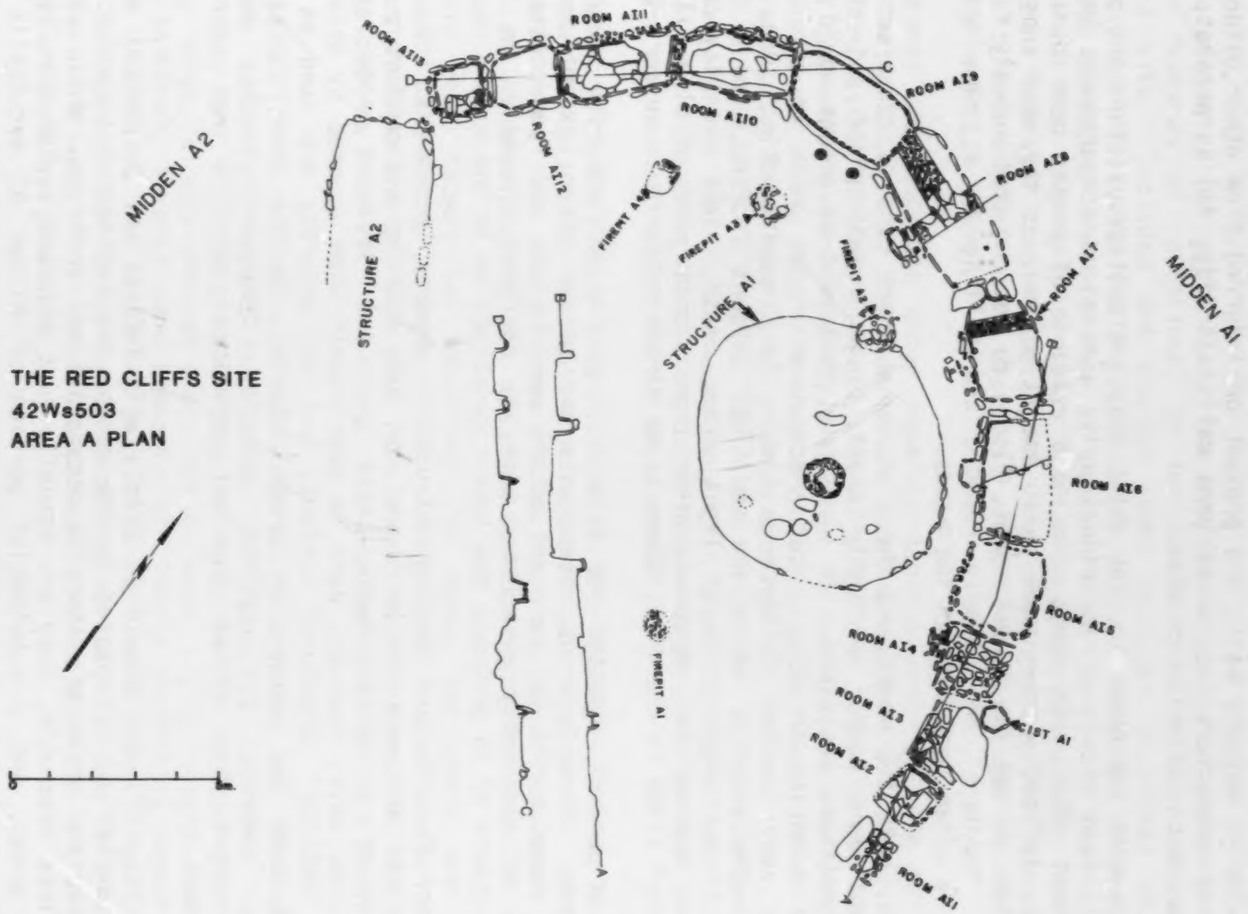

THE RED CLIFFS SITE
42Ws503
AREA A PLAN
MIDDEN A2
MIDDEN A1
STRUCTURE A2
STRUCTURE A1
ROOM A113
ROOM A111
ROOM A112
ROOM A110
ROOM A19
ROOM A18
ROOM A17
ROOM A16
ROOM A15
ROOM A14
ROOM A13
ROOM A12
ROOM A11
CIST A1
FIREPIT A1
FIREPIT A2
FIREPIT A3
FIREPIT A4
A
B
C
D
0

Figure 27. Final feature plan and selected profile map of Area A.

surfaces. The stone concentration, which is little more than the descriptive terminology indicates, is likewise described under Area B and need not be detailed here.

Excavation Area A

This is the north most, larger and initially opened of the two major areas of excavation on the Red Cliffs Site (Figs. 22, 27). Features include a long alignment of storage rooms, apparently representing in toto a long period of occupation and several building episodes (Room Block AI); two apparent habitation units of substantially different style and age (Structures A1 and A2); two trash areas or middens, each mainly representing a different occupation period (Middens A1 and A2); some indications of use or occupation surfaces, generally vaguely defined and poorly controlled; four firepits outside of structural context (Outdoor Firepits A1 thru A4), and generally outside of closely defined relationships with other Area A features; and, finally, a small, "stray" storage cist (Cist A1).

Distinct early and then late occupations in the excavation area are quite clearly seen (Fig. 25). Less well demonstrated in detail are the indications of intermediate use, to some extent utilizing existing features, that bridge from the early to the late. It is also not wholly clear whether the use of Area A represents continuous occupation, or several discontinuous episodes. Based on the large block of time apparently involved, and in view of the deposit and artifact accumulations, it is assumed that the latter is the case, but no additional evidence substantiates this reasoning.

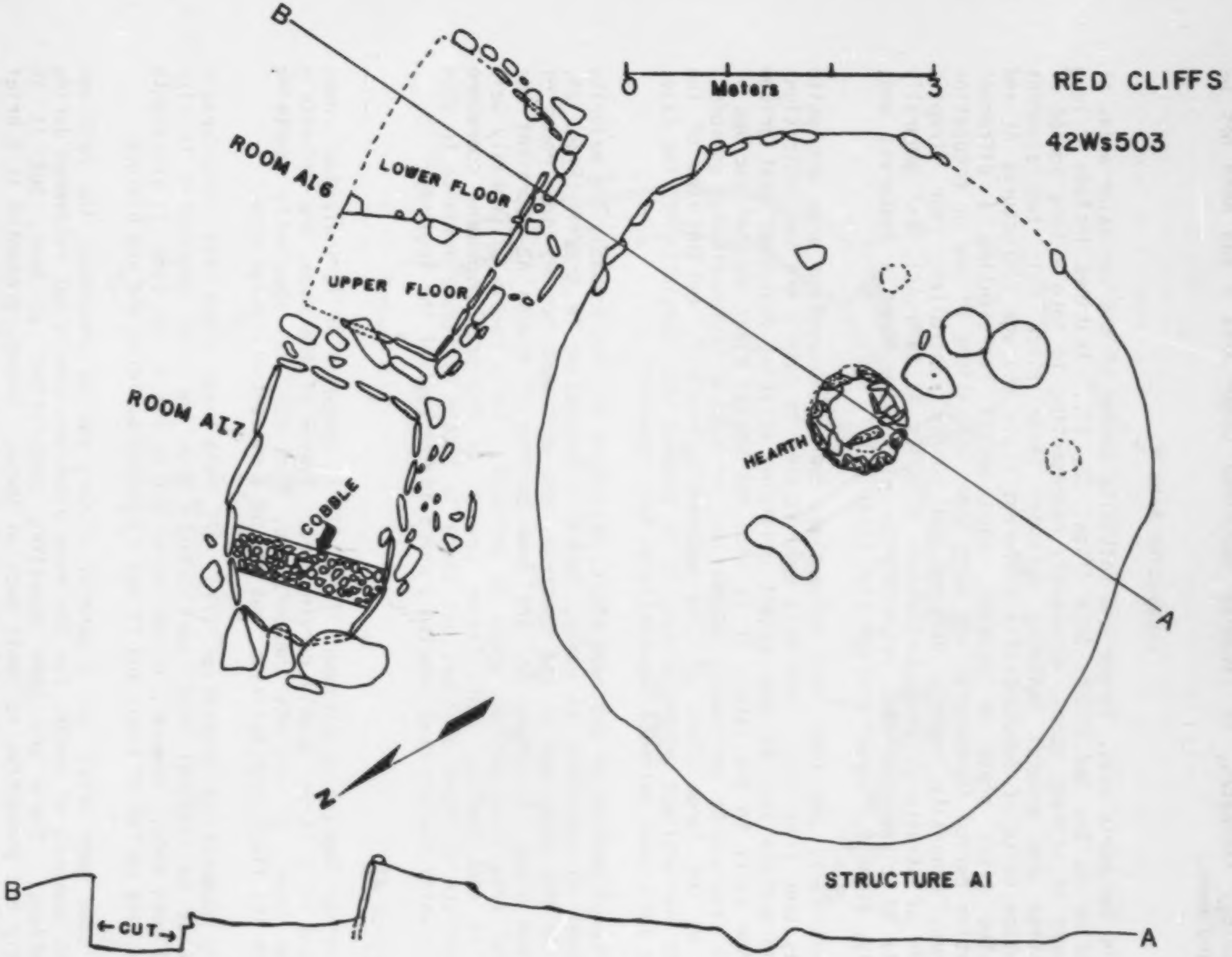
Some "core" portion of the room block, Structure A1, and probably the majority of Midden A1 represent an early, Pueblo I occupation in Area A (Figs. 25, 28). At the other end of the spectrum, the west most two or three rooms of the room block, Structure A2, and some portion of Midden A2 represent the terminal Area A occupation, which is definably Early Pueblo II probably well along in that period. This leaves several of the area phenomena somewhere intermediate in terms of time, but there is little available evidence to show exactly which feature goes precisely where in the rest of the sequence.

Room Block AI.

This rather impressive alignment (Fig. 27) is composed of 13 individual rooms arranged in a large, gently curving arc. Twelve of the rooms are definitely storage rooms, or remnants thereof; one, Room AI9, was apparently something else in its final configuration, but may be a converted storage room.

Totally exposed by excavation (Fig. 27), the room block has considerable appeal as an integral unit, particularly with the rooms decreasing in size toward both ends. However, it was never all in use at one time, it represents a very long period of time, and it has a complex building and use history.

While some good detail and a general history can be presented, the full and precise sequence of events for the room block was simply not recovered during excavations. There are some appealing speculations at hand, but it is probably not productive to dwell much on these. Rather, presented is a brief outline of what appears consistent with the data at hand.


RED CLIFFS
42Ws503
0
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3
B
A
ROOM AI6
LOWER FLOOR
UPPER FLOOR
ROOM AI7
COBBLE
HEARTH
N
STRUCTURE AI
B
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A

Figure 28. Plan and profile of "core" area of Area A consisting of Structure AI and Rooms AI6 and AI7.

Rooms AI6 and AI7 are definably the earliest rooms (Fig.25) in the room block. With Structure A1 and Midden A1, they represent the early occupation (Fig. 28) of Area A, which is defined as Pueblo I. The two rooms are stratigraphically early and of Pueblo I style. Also with reference to stratigraphy, Structure AI and Room AI6 are not separable and were apparently built at essentially the same time. The minor, local, and partly defined of necessity Stratum A2a is associated with these features.

After initial use of Rooms AI6 and AI7 and the collaspe of Structure AI, the balance of the construction and use of the room block apparently relates to an Early Pueblo II occupation. Initial expansion of the room block is seen to be to the north and west. Rooms AI8 thru AI11 are not wholly separable stratigraphically, although they tend to be less deeply buried in the AI8 to AI11 order. Rooms AI8 and AI9 both show indications of rebuilding and realignment and, as noted, Room AI9 may have been modified from a storage room to an entirely different use. It is in the area of Rooms AI8 and AI9 that the authors feel a major realignment of the room block was missed, but that is not demonstrated.

There is some reason to believe that expansion of the room block to the south was begun before Rooms AI8 thru AI11 were all in place. This cannot be totally demonstrated by reference to the very thin strata toward the south end of the room block, but it appears that a couple of the south rooms may predate at least Rooms AI10 and AI11.

What does seem clear, is that the entire south arm was in place before Rooms AI12 and AI13 were built. This is by reference to strata, state of repair, and cover. Rooms AI12 and AI13 thus represent the terminal storage facilities in the room block, with Structure A2 added subsequently.

This, of course, in no way fully accounts for which rooms or groups of rooms were used at given periods. There is also evident in various rooms a lot of patching, remodeling, rebuilding and setting of second floors, so the sequence is made ever more difficult to secure. Rooms AI6, AI7 and AI8 had definitely been robbed of slabs (Figs. 34,40), so they may have fallen into full disuse rather early. Rooms toward the south end of the block were also missing slabs, although perhaps from incidental abuse (Figs. 29,30) rather than robbing, so they were apparently not in use for some unspecified period before the room block was totally abandoned. Rooms AI10 (Fig.42) and AI11 (Fig. 45), other than damage from potting, were still in good condition and could have stayed in use after the final two rooms were added; there is no convincing evidence either way.

The reasoning above does provide some parameters but it does not include all of the answers. What does come through clearly, however, as has been noted in previous sections, is that these rather innocuous-looking alignments of relatively minor constructions are not that easy to work, and researchers in the area need to be attuned to the particular kinds of problems features such as Room Block AI can present.

Room AI1. As exposed by excavation, this feature appears as a small, square (1.2 by 1.2 m.) pavement of slabs and cobbles (Figs. 27,29). Clay is evident in abundance around the stone, but no evidence of a clay covering was noted. One little upright slab butt is present on the southeast corner.

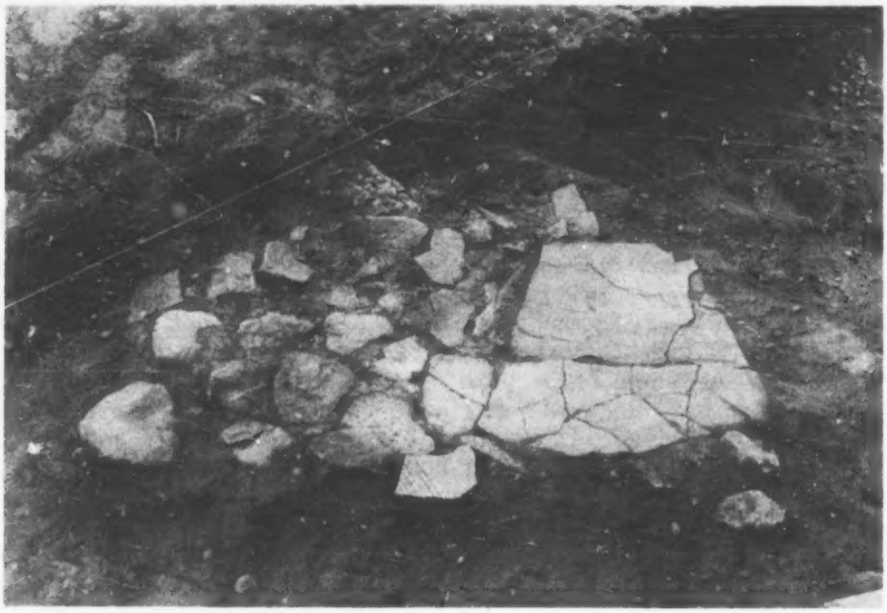


Figure 29. Room AI1, initial definition.

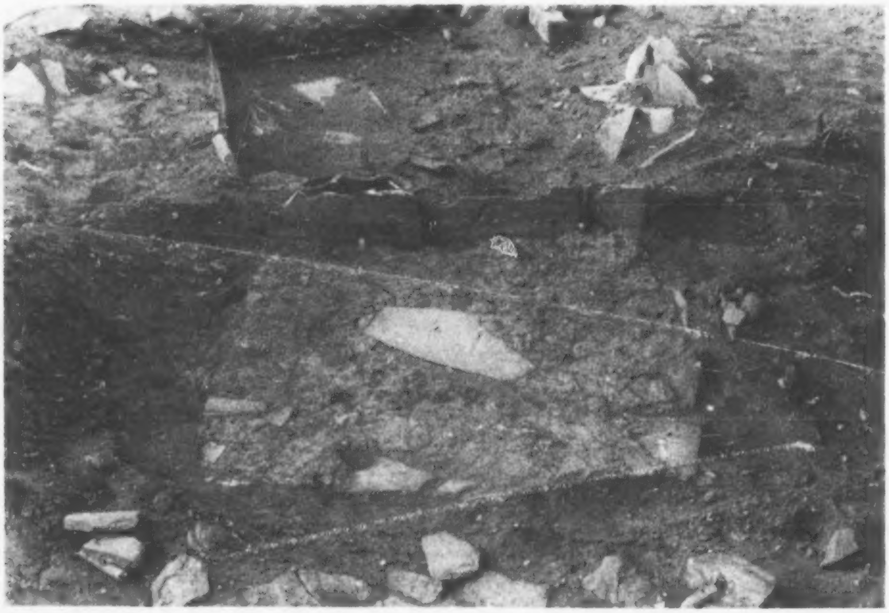


Figure 30. Room AI2 fully exposed.

This was one of the first features cleared on the site and initial interpretation was that the pavement was more or less a complete feature and simply served as an outdoor use area or patio. More probable, however, in view of other site phenomena, is that the feature is the remnant of a slab-lined storage unit. Edges are straight and well "setup" for slabs; lack of a clay floor covering is probably a matter of exposure and weathering as the feature was only covered by 6 or 8 cm. of blow sand and Stratum A2 material. Small size is no particular factor, either, as the feature is only slightly smaller than Room AI2, which shows better evidence for slab uprights; it is actually slightly larger than Room AI3, which shows both lining slabs and outlining masonry.

Room AI2. This is a small, square room (Figs. 27,30) about 1.25 m. on a side. Three ca. 13 cm. high upright slabs mark the north wall, and two small butts of slabs are midway along the east wall; otherwise, slab walls are indicated only by the sharp, straight contact (Fig. 30) between the edges of the floor and surrounding stained sand. The floor is composed of nicely fitted sandstone slabs (Fig. 27) covered by a thin (1.0 to 2.0 cm.) layer of clean, red clay. Better than 50% of the floor is composed of only three large slabs (70 by 50 cm., 70 by 40 cm., 50 by 40 cm. - all 2.5 to 3.0 cm. thick). Most of the balance of the floor slabs are markedly smaller but of similar thickness. Slabs do not overlap appreciably but joints and gaps are filled or covered by small stones or tabular fragments.

The floor was covered by only ca. 6 cm. of flaky clay and 8 to 10 cm. of loose Stratum A2 material. Floor slabs rest on Stratum A5 gravels with just a trace of intervening stained sand. Wall slabs extend just a few centimeters below the floor stones.

Room AI3. This feature was badly damaged by a large pothole (Fig. 27) sometime before it was excavated. The vandalism took about 50 % of the structure, including virtually all of the north and east wall alignments, and the east portion of the floor. Found in the spoil from the vandals pit were two large, well-dressed slabs, each about 1.0 by 0.30 m. in outline size. These were probably used as major floor slabs. It is also probable that they came from an earlier structure similar to the big Area B cists (see below).

The apparently intact west wall is 1.5 m. long and is composed of three edge-set slabs; the largest, central slab is 70 cm. long by 3 cm. thick and extends 18 cm. above the floor. Only one slab is present on the south but it abuts an east wall slab to form a corner.

Where not disturbed, the floor consists of 2 cm. or less of clean clay over fitted and chinked tabular stone pieces of various shapes and sizes. The floor slabs rest on Stratum A5 gravels. Structure fill above the floor was 8 to 10 cm. of Stratum A2 material over 4 to 6 cm. of loose clay.

Besides destroying a major portion of the room, the pothole cut away any evidence of the precise relationship between the room and the little Cist A1 in the vicinity of the room's projected northeast corner (see Figure 27 and below). Fortunately, however, the pothole did not damage the cist.

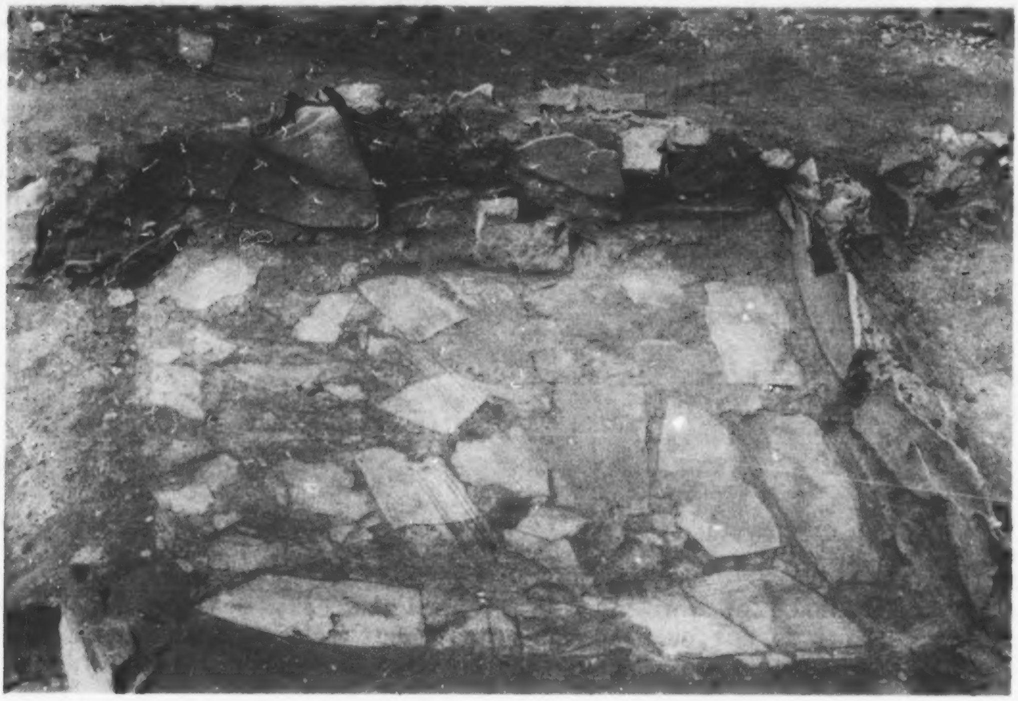


Figure 31. Room AI4 showing partial exposure of floor stone.

Room AI4. Slightly trapezoidal in outline, this room (Fig. 31) measures ca. 1.5 m. along the east and west walls, 1.4 m. along the south wall, and 1.75 m. on the north. Edge-set slabs are in place on the north and west, but are mainly missing on the south and wholly gone on the east. Regular and straight floor edges, however, indicate the unit was once completely slab-lined. The slabs in place are mainly from 30 to 50 cm. in length, only about 2.0 to 2.5 cm. in thickness, and extend only 10 to 20 cm. above the upper floor surface.

The room does have two floors, although the lower was not much exposed during excavation. The upper floor (Fig. 31) consists of a thin layer of clay over tabular stone pieces - rectangular, square or irregular in shape. Noticeable is quite a lot of minor overlapping and gap-filling rather than the close and careful fitting seen in several other storage structures. The lower floor is similar in general construction; that is, clay over tabular sandstone, but not enough was exposed to determine size and shape of the stones. The lower floor rests on Stratum A5 gravel. There was just a trace of loose, slightly stained clayey fill between the floors. Total thickness of the upper floor is ca. 70 cm; the lower floor is of a similar dimension. Wall slabs extend slightly below the stones of the lower floor.

Between 23 and 28 cm. outside the west wall slabs, well north of center, are two thin, nearly vertical slabs (Fig. 27). These are aligned north-south and extend for a total length of ca. 50 cm. Heights are about 18 cm. Immediately west of the upright slabs is a cluster of four horizontal slab pieces. These form a small pavement that is partially set in clay and partially clay covered. Probably this little construction is the remnant of a bin of some sort. The horizontal slabs were laid on Stratum A2 material.

Just outside the west wall slab alignment of the room is a 1.2-m.-long alignment of small stone blocks and cobbles. These are set on Stratum A2 material and extend from a few centimeters below to slightly above the tops of the wall slabs. This is apparently a partial base course for a low masonry wall.

Midway along the west wall on the inside of the room is a tabular boulder of modest size (Figs. 27,31) with a smaller cobble wedged between it and the center wall slab. The larger stone is incorporated in the upper floor and extends through the clay of the lower floor.

The fill of the room was about 20 cm. of loose, clayey material with some stained sand and noticeable but not abundant rocks. Slab tops were buried under only 8 to 15 cm. of sand, mainly Stratum A2 material but probably with a Stratum A1 cap.

Room AI5. Nearly square, this room (Fig. 27) measures 1.87 m. north-south and 1.80 m. east-west on the interior. Rocks lining the shallow pit edges and forming the interior walls are rather small slabs, mainly on the order of 20 to 30 cm. long, and rather markedly sloped out from vertical. In a few instances, cobbles have been used rather than slabs, and in several instances, cobbles tie the wall slabs and adjoining floor slabs giving the impression of a double lining.

Immediately outside the slabs on the west is a full line of generally smallish stone, apparently a masonry base course. An alignment of noticeably larger blocks is on the north, filling the space between the north wall of Room AI5 and the southern wall of Room AI6 (Fig. 27).

The floor is composed of a layer of clean, rather soft and flaky clay laid over slab fragments, cobbles, etc. The stone floor presents a very irregular surface as it shows extensive overlapping, chinking, and tying rather than careful fitting of the involved stones; the clay covers this all nicely and presents a smooth, even surface, but is perforce quite variable in thickness. The floor was probed during excavation only enough to establish the presence of an earlier, lower floor - this was not pursued, however.

The room was filled nearly to the tops of the lining rocks with 12 to 18 cm. of quite clayey material, reddish in color and rather soft and flaky. Very little rock or cultural debris was included in the fill. Directly on the clayey fill was an 8 to 10-cm.-thick layer of Stratum A2 material, rather more loose and "trashy" in nature than usually seen; covering this was a very thin (2 to 3 cm.) cap of Stratum A1 blowsand.

Stratigraphically, Room AI5 is not separable from Room AI4 that adjoins on the south. Both originate at about the same level within Stratum A2. There is, however, a marked stratigraphic separation between Room AI5 and Room AI6 (adjoining on the north) in that Room AI6 was found to be sealed by Stratum A2

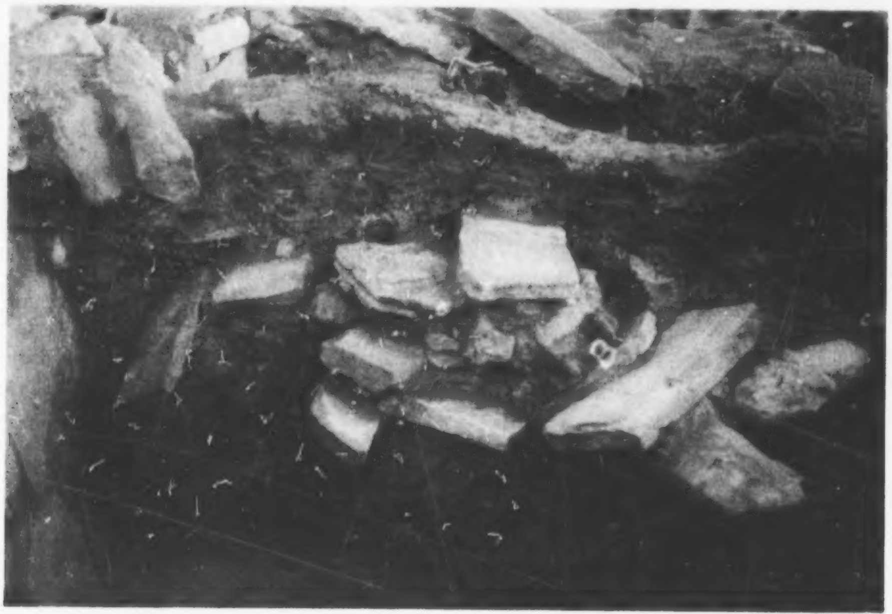


Figure 32. Detail of sectioned-slab building stone in the fill of Room AI6.

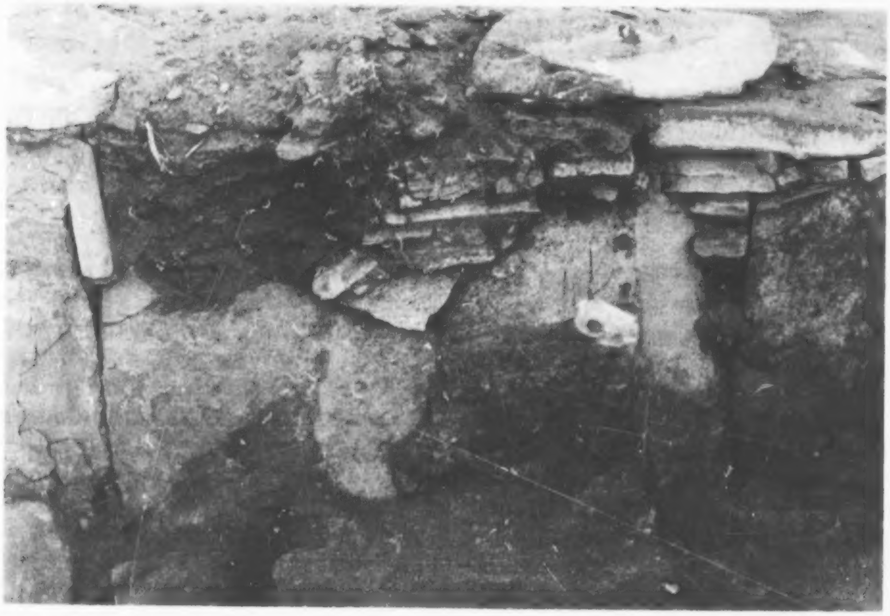


Figure 33. Detail rebuilding/patching of the southwest wall of Room AI6. From the interior of the room.

and originated on Stratum A5 gravels/Stratum A4 sand. Room AI6 is additionally a larger, deeper, more substantial room that shows certain construction details indicative of rather early storage rooms (see below and Architecture and Related Features, above)

Thus, there is a major break in the Room Block AI sequence between Rooms AI5 and AI6; at least this is apparent as regards temporal placement - there is obviously no break in the alignment (Fig 27). Quite probable is that Room AI5 was actually not emplaced until Room AI6 had fallen into disuse and essentially filled.

Room AI6. The tops of the lining slabs for this large, deep room (Fig. 27) were encountered under 25 to 30 cm. of Stratum A2 material. The room is rectangular with interior measurement of ca. 2.6 m. northwest to southeast and 1.5 m. northeast to southwest. With exterior walls included, the long axis runs to ca. 3.2 m.

The structure pit is about 50 cm. deep; level of origin is at the bottom of Stratum A2. On the westward side, the pit was wholly cut through rather loose Stratum A5 gravels but on the east the pit (Fig. 34) cut only through clean, carbonate-streaked sand (Stratum A4).

End-set slabs line the pit walls on the southwest (save for one gap) and along portions of the northwest and southeast walls adjacent to the southwest wall. The entire northeast wall is missing along with various adjacent portions of the northwest and southeast walls (Fig. 27). Wall slabs are set nearly vertically and are thin, well-dressed, and nicely fitted. Slabs vary in width from 20 to 60 cm. (about 40 cm. average) and in thickness from 2.5 to 4.5 cm. Full height above floor for slabs with dressed tops is 55 cm.; another 30 or so cm. would be required to extend these slightly below the floor.

A base course for an exterior masonry wall (Fig. 28) is essentially intact on the southwest, northwest, and southeast; along the latter two walls, there is more exterior wall extant than interior slab lining. Where slabs are apparently full height, the base course rocks run from slightly below to slightly above the slab tops. The sandstone (mainly) blocks in the base course do not show much evidence of preparation and vary widely in size; most, however, are basically rectangular in outline and tabular in section. Several are quite large, partially on the northwest where a range from 40 by 20 by 15 cm. to 20 by 30 by 20 cm. is seen.

Virtually no wall fall was found outside the room, but a great deal was encountered in the upper ca. 30 cm. of interior fill. Of interest are two or three noted instances where small sections (Fig. 32) had come in sufficiently intact so that six courses could be counted. All of this material, plus a substantial portion of the more scattered fall, appears to be pieces of large, dressed slabs (Fig. 32) that had been broken (or scored and snapped) into blocks 25 to 30 cm. long, ca. 20 cm. wide, and ca. 5 cm. thick.

Midway along the southwest wall and extending ca. 30 cm. out from the base course alignment is a small construction, 50 to 70 cm. long, composed of four light edge-set slabs about 25 cm. high. Thus formed is a three-sided, bin-like unit of some sort. No constructed floor or floor surface was

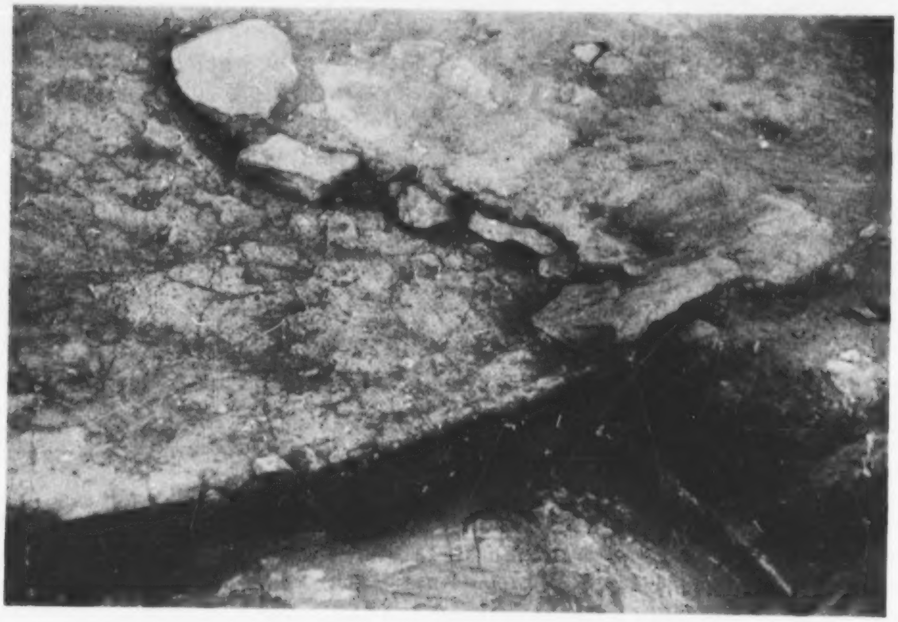


Figure 34. Detail of the crisp northeast edge of Room AI6 where slabs were missing. Also shows both clay-over stone floor.

identified. The northwest and southeast slabs tie against base course rocks, and the room pit lining slab facing the feature is cleanly snapped to about 15 cm. below the tops of adjoining slabs; also, a short tabular stone is set across the top of the shortened slab on its southwest margin and protrudes out slightly from the general wall alignment. Apparently, then, the "bin" belongs with the room and some interior accommodation (Fig. 33) was made for it; purpose or function, however, is not known.

The room has two full floors (Fig. 34). While the lower floor was exposed only over the southern half of the room, and then mainly only to the clay surface, the entire northeast edge (Fig. 34) was exposed and found to be intact. The upper floor is a relatively thin layer of clay over a mixture of tabular cobbles and relatively small slab fragments. The clay surface is smooth, compact, and only lightly stained. It was also devoid of contact artifacts. The stone of the upper floor is laid directly on the clay of the lower; where exposed, the lower floor stone is more massive than in the upper floor. The lower clay is somewhat thicker than the upper but presents a similar surface. The entire floor "package" measures up to 25 cm. in thickness along the exposed northeast edge (Fig. 34), but that includes some thickening commonly seen at floor margins. The stones of the lower floor rest on Stratum A4 sand, at least along the northeast margin.

Fill of the room (Fig. 33) consisted of (1) an upper ca. 30 cm. of clay, trashy sand (Stratum A2) and masses of blocky stone - apparently wall fall, and (2) a lower, ca. 30 cm., composed mainly of loose clay, some sand, but very little rock. For the volume involved, artifact yield from the fill was very light.

Robbing of the northeast lining slabs evidently took place after the room had fallen into disuse and partially filled. During excavation, part of the northeast side of the room was exposed from the outside and the lower 30 cm. of clayey fill clearly showed slab impressions and retained the slope imposed by the slabs. Further, much of the stone in the upper 30 cm. of fill, particularly on the east, was so jumbled that it about had to have been thrown in, rather than simply being fall. Apparently, then, much of the northeast masonry was discarded into the partially filled room pit so as to get at the slabs. It is inferred that it would have been necessary to almost wholly dig the slabs out from the back to pull them as cleanly as the totally intact (Fig. 34) northeast floor margin indicates, but direct evidence of this was not seen.

Room AI7. This relatively deep room is remarkable in the treatment of the northwest wall (Figs. 35, 40) where low slabs have been tied between and under three large boulders (up to 70 by 40 by 25 cm.). Numerous rocks and spall had been used to seal the joints and crevices, and as a great deal of stone was found in the fill adjacent, it is probable that some masonry was used to increase wall height and produce a more or less straight wall. The boulders do not appear to be *in situ* nor is it likely that they came from the structure pit as bar gravels were penetrated during original construction only on a portion of the southwest side.

Two boulders and three slabs form the southwest wall (Fig. 35). The boulders here, however, are relatively thin and tabular and present nearly vertical faces not substantially different from the thin (2.5 to 3.0 cm.) slabs. About midway along the wall a small (20 by 10 by 15 cm.) rock has been set firmly in the floor to tie the slightly overlapping edge of a slab to the face of an adjacent lining boulder.

The southeast wall is composed of four well-aligned and nicely butted slabs (Fig. 35) ranging in length from 30 to 55 cm. and in thickness from 2.5 to 5 cm. Height above floor decreases from 60 cm. (apparently full height) on the west to 20 cm. on the east.

The northeast wall lining is also composed of four slabs. These are rather substantial, ranging from 45 to 80 cm. in length and from 3.5 to 4.0 cm. in thickness. None appear to be full height and range only from 25 to 50 cm. above the floor. Rather than butting, this alignment (Fig. 27) is marked by back-to-front overlap, at least in the center section. A tie stone up through the floor is in place at the juncture of the northward slabs.

Only a scattering of stone indicates the presence of a masonry base course on the long (northeast and southwest) sides. Some of this may have been lost to a large, partially refilled pothole that marked the structure's location but that appeared to be mainly surficial - at least it did not penetrate to the floor.

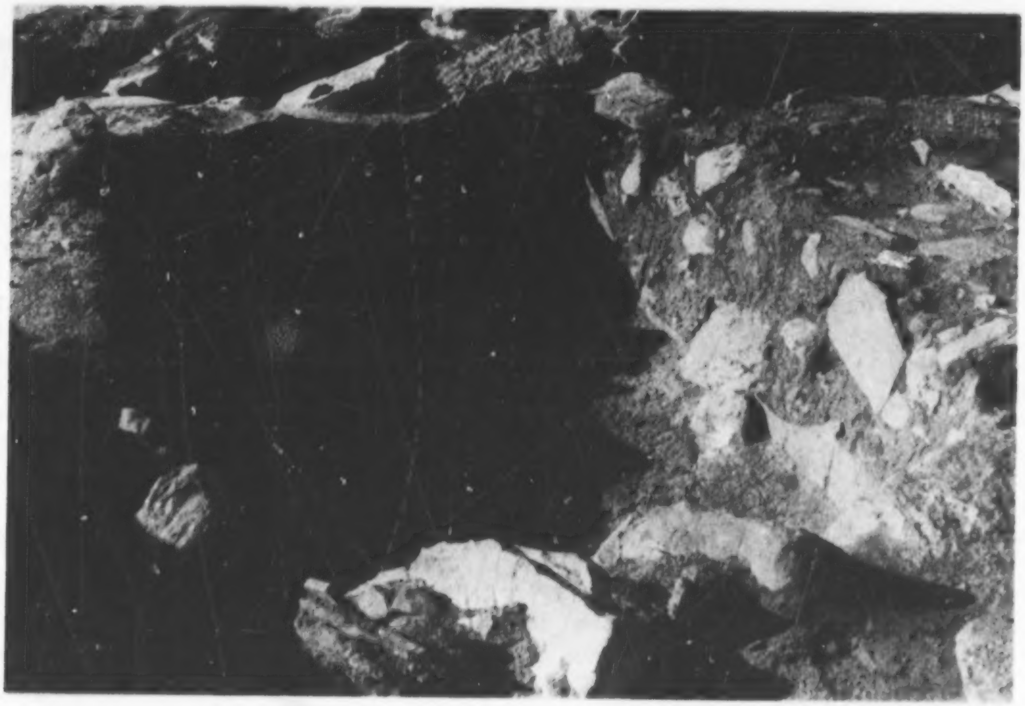


Figure 35. Fully cleared Room AI7. View to the south, toward Room AI6.

About centered on the southwest wall and 30 cm. out from the edge of the room pit is the remnant of a little bin or box ca. 70 cm. by 40 cm. Small upright slabs are on the southwest and northeast and a broken slab appears to mark a northwest side. Neither floor stones nor definite floor indications were identified, however.

A ca. 45-cm.-wide test trench run across the long axis (Fig. 27) indicates the room has a single floor composed of about 5 cm. of clean red clay laid over cobbles of various sizes. No slabs at all were observed in the test trench. On the southwest, where the floor was removed within the test trench limits, clean sand (Stratum A4) was found immediately under the stone, and lining slabs were found to extend 5 to 10 cm. below the floor.

Because of the potholes and the wide range in slab height, the relationship between overburden and pit fill was somewhat obscured. The structure remnant appeared to be buried under ca. 25 to 30 cm. of Stratum A2 material. Fill appeared as mainly clayey with most of the apparent and abundant fall from the upper walls confined in the upper 30 cm. of a total 60 cm. of fill. A noticeable number of the rocks in the upper fill appeared to be portions of sectioned slabs, as described for Room AI6.

Room AI8. In outline size, this subrectangular slab-lined room (Figs. 27,36-41) is by far the largest of the Room Block AI examples. The long, northern slab alignment measures ca. 4.0 m.; the opposite alignment, however, is only 3.4 m. long as both the east and west alignments (both ca. 1.4 m. in length) pull in noticeably. The structure pit is relatively shallow as shown by full slab height of about 30 cm. above the upper floor. The double floor, however, attains a thickness of ca. 18 cm. and adds that much to full depth. The structure fill was covered by only 10 to 12 cm. of Stratum A2 material and consisted of sandy, flakey clay with an abundant rock content; rock was most abundant in the upper fill and mainly did not extend to the floor surface. About 1.0 cm. of clean sand was found between the clayey fill and the clay surface of the upper floor.

The north, south, and west wall slabs vary widely in length (25 to 110 cm.) but are of rather uniform thickness (2.0 to 4.0 cm.) and are mainly well-aligned and neatly butted, although there are gaps on the north that probably required chinking. Most are edge- rather than end-set. Slabs on the west and south appear to be mostly full height (to 25 to 30 cm.). Those on the north are only butts extending just a few centimeters above the floor. Many horizontal slabs were found just interior of the north wall, lying in fill ca. 5 cm. above the floor. This seemed to present a neat and logical situation until it was found that in only one instance did a horizontal piece fit the adjacent butt.

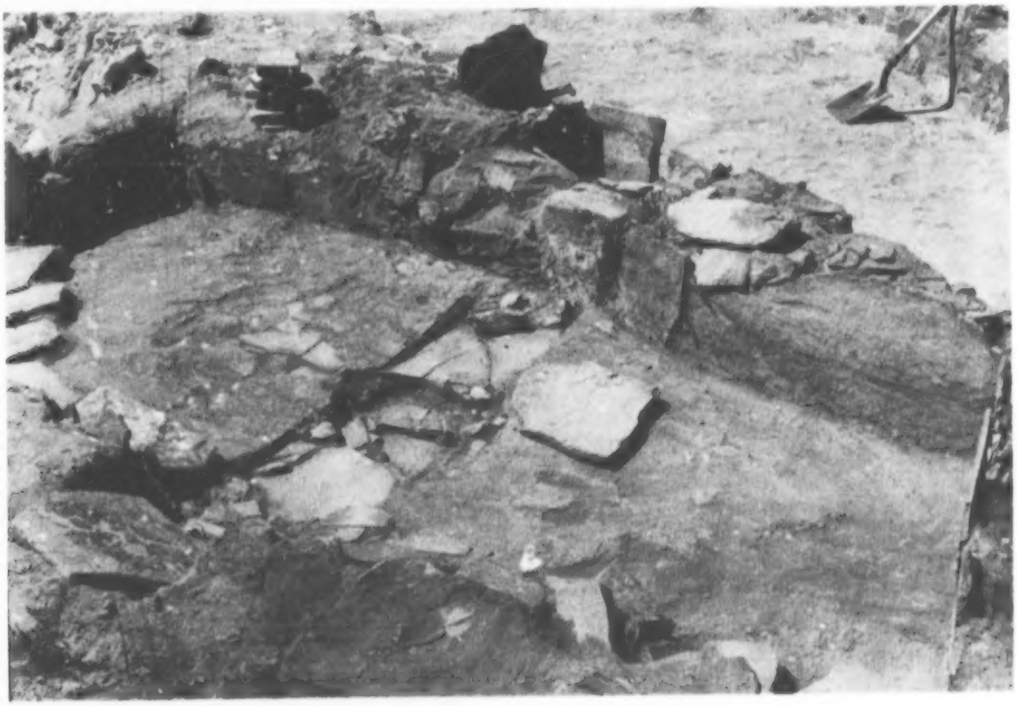


Figure 36. Partially cleared Room AI8 with large floor slabs exposed in test trench.

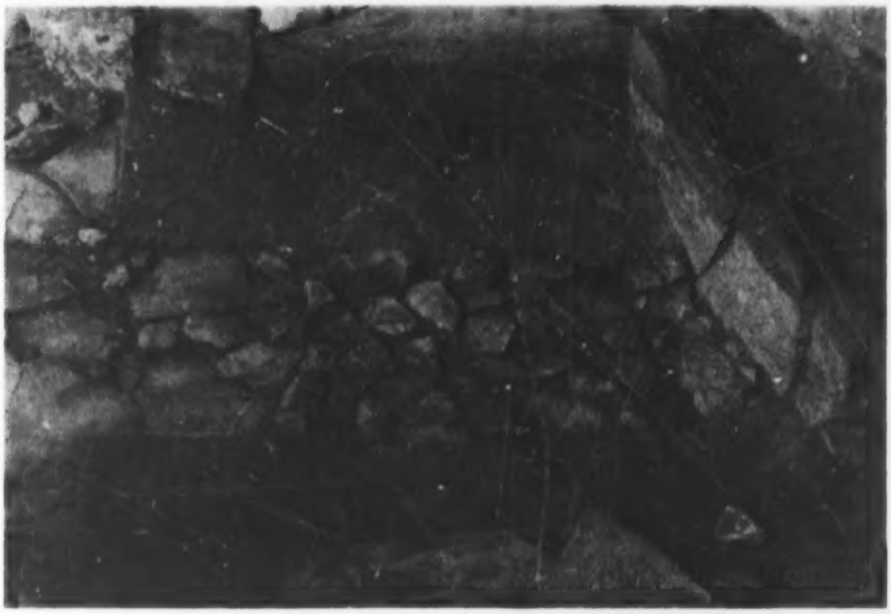


Figure 37. Room AI8 (west end) showing cobbles comprising the stone of the upper floor.

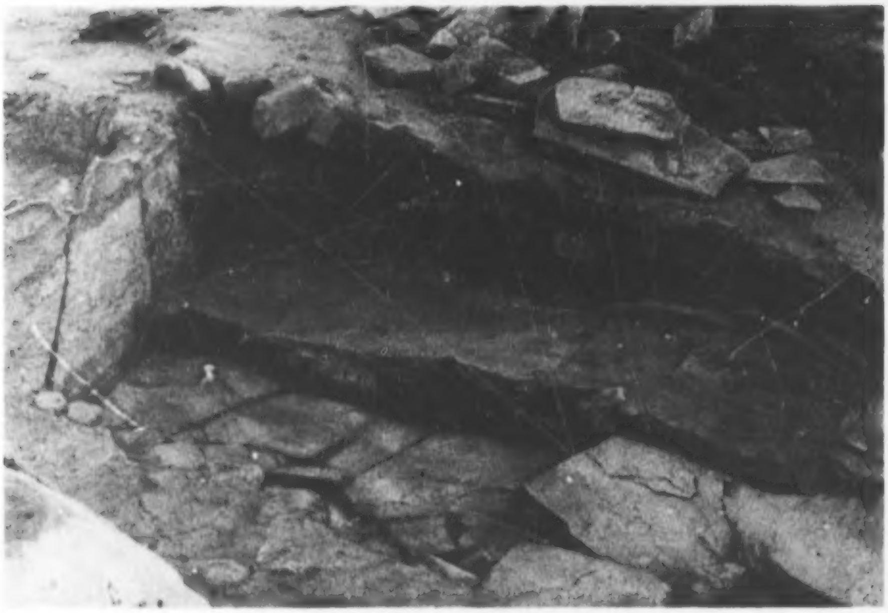


Figure 38. Room AI8 (west end) showing large slabs comprising the stone of the lower floor.

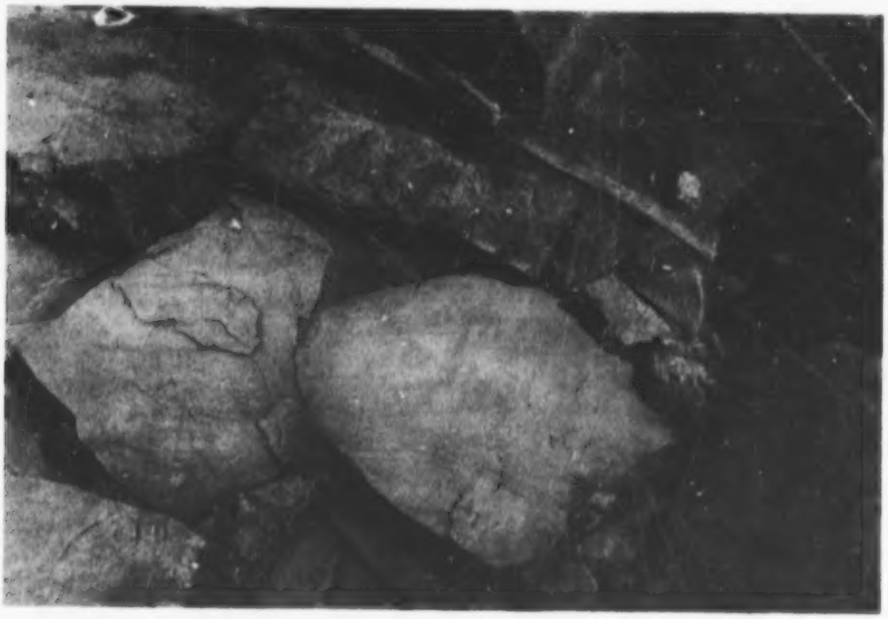


Figure 39. Room AI8, detail of tie of floor slabs to wall slabs.

Figure 40. Detail of the east end of Room AI8 showing crisp edge of floor clay where slabs are missing. Also details large boulders separating Room AI8 from AI7.

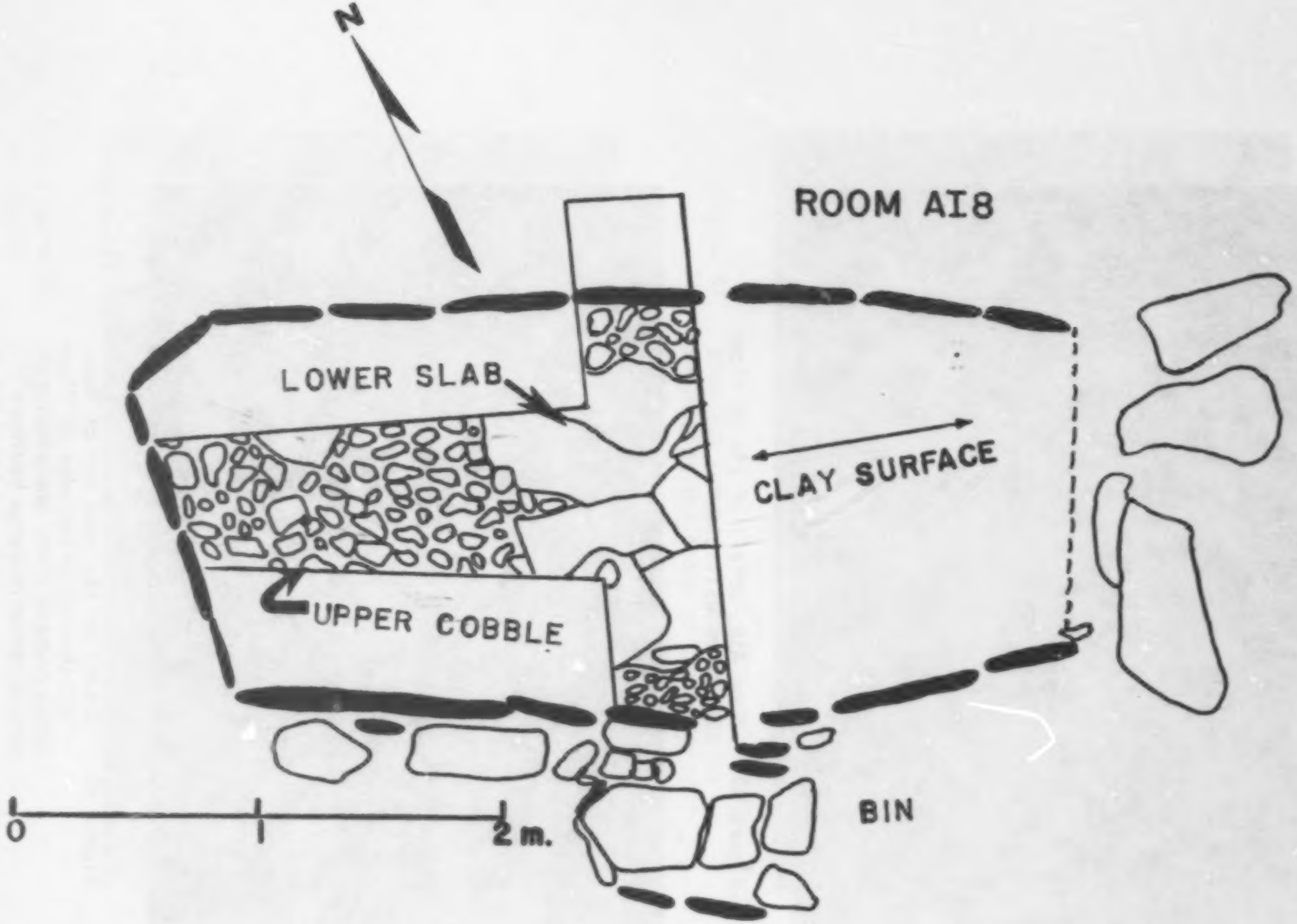

N
ROOM AI8
LOWER SLAB
CLAY SURFACE
UPPER COBBLE
BIN
0
1
2 m.

Figure 41. Detail plan of Room AI8 showing various exposure of the two clay-over-stone floors.

There are no slabs (or butts) on the east but the edge of the floor clay is straight and crisp (Fig. 40) indicating they were once present. The clayey structure fill, however, extended in an irregular line well beyond (8 to 15 cm.) the edge of the floor, in places to the big boulders separating this room from Room AI7 (Fig. 40). Indicated is that there was no restraint or support at this end when the room began to fill, a situation opposite that abstracted for one of the walls in Room AI6 (see above).

The two floors of the structure were explored only in the western half of the room (Figs. 37,38,41), but there is no reason to think either was other than fully intact. The upper floor consists of 2.0 to 4.0 cm. of clean clay laid over a combination of large fitted and chinked slabs, some smaller slab pieces, and some areas composed exclusively of cobbles (Fig. 37). Over the exposed area, large slabs are found toward the center of the room and are tied along the wall slabs with cobbles (Fig. 39); the western 1/3 of the room shows a mixture of cobbles and small slab pieces.

The lower floor is also clay over stone but the thin, clean, clay band that forms the floor surface is laid over up to 3.0 cm. of rather purplish clay that shows an appreciable charcoal content. This material, in turn, is in direct contact with the floor stones, which, insofar as exposed, are large fitted slabs (Fig. 38). One large slab laid along the east wall shows a gap of from 2 to 6 cm. between the edge of the slab and the butt of the wall slab. The gap is fully and tightly chinked with small, vertical slab pieces.

The lower floor stones are on clean, yellow, Stratum A4 sand. Wall lining slabs extend just a few cm. below the floor slabs and into the sand.

Only a few large blocks remain aligned along the western portion of the south edge to indicate outside masonry walls (Fig. 27). A few stones were noted outside the north wall slabs but these were scattered and may or may not have been in place. Masonry could have been used on the east, either free standing or tied to the big boulders; either way would work, and there is room to accommodate a wall. There is no room, however, on the west where the east wall slabs of Room AI9 are in very close (4 or 5 cm.) proximity to the exterior faces of the Room AI8 slabs.

Room AI9. In the context of other structures in the room block, this remnant (Fig. 27) is unusual in several respects. While it is similar in size and bears general morphological resemblance (slab-lined, and clay-over-stone floor) to other units in the alignment, it may have served some use other than storage.

The room is noticeably nonsymmetrical, mainly by virtue of a west wall that forms fairly marked acute and obtuse angles with the north and south walls, respectively. Interior length is 3.1 m. on the north and 2.6 m. on the south; width ranges from 1.4 to 1.6 m. The floor surface slopes down, rather evenly, a full 18 cm. from west (Room AI10 side) to east (Room AI8 side).

The upright slabs outlining the structure are uniformly small (Fig. 42). They range from about 8 to 15 cm. long and up to 2 cm. thick. No slab extends more than 15 cm. above the floor surface and all slope out noticeably, but not sharply, from vertical. Some west wall slabs are in direct contact with the higher slabs of the east wall of Room AI10; on the east, wall slabs are slightly separate from those in the west wall of Room AI8.

The floor is a thin layer of clay over numerous small slabs. Rather than fitted, these pieces are extensively overlapped and in some places up to three thick. There is quite a bit of material similar to the floor clay in with the stone. No indication of a second, separate floor could be found, however, and the clay is assumed to be integral as filler and binder. There was a thin (0.75 cm.) layer of clean red sand directly over the floor clay.

Backing the slab alignments on both the north and south are bands or coils of clean, red clay (Fig. 27), apparently separately laid in narrow trenches. The clay averages 20 cm. wide and 18 cm. thick, extending from the bases to slightly below the tops of the slabs. On the south, just beyond the clay, are two large (20 cm. diameter) apparent post stains (Fig.27) extending deeply into Stratum A4 material. One of these is about centered on the south wall, the other is ca. 40 cm. west of the southeast corner.

Just off the southwest corner of the room, and directly adjacent to the east end of the south wall of Room AI10, is a concentration of apparent construction clay lying over clean sand with clean sand also on the west and south. This is slightly overlain by the clay coil backing the south wall slabs for Room AI9, and is sharply truncated by the pit dug to place the south wall slabs for Room AI10. While tenuous, suggested is some remodeling in this area. A possibility is that an originally straight west wall of Room AI9 was pulled back sharply to its present configuration to accommodate the building of Room AI10.

The fill of Room AI9 was a reddish, rather lumpy, but loose clay with a lot of small charcoal included and a rather high carbonate content. This fill could be seen as "spill" on both the north and south; that is, it extended out over the slab tops as well as over and well beyond the clay coils, where it rested on Stratum A2 deposits.

In its final configuration, this structure was apparently being used for something other than storage, although it may have originally been constructed as a storage room. Available evidence suggests a ramada-type roof over the clay and stone pavement - possibly indicative of use as a shaded and clean activity area.

Room AI10. Most of the fill and perhaps 80% of the floor of this room had been removed by pot hunters (Fig. 27,42) prior to excavation. Walls, however, had not been damaged. The remnant floor appears as clay laid over slabs of moderate size. Only one floor is present and it is set on clean, yellow sand (Stratum A4).

The north wall is markedly out-curved and is lined with both slabs and thick tabular boulders that present sloping, somewhat irregular faces. The boulders are on the west and the slabs on the east. Masonry immediately outside is represented by one to two courses of blocks, cobbles, and slab pieces. The masonry originates in Stratum A2 and extends several centimeters above the lining stone. Interior wall length is ca. 2.6 cm.; lining stone height above floor is from 20 to 45 cm. high.

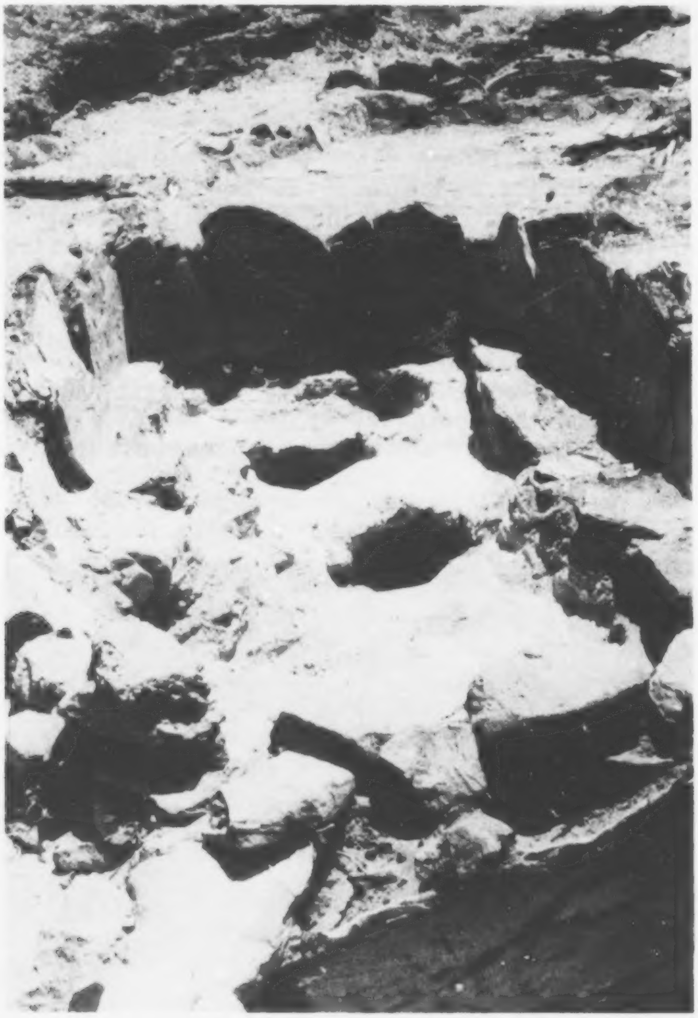


Figure 42. Room AI10 fully cleared. Shows pot hunter damage to floor and potholes extending into sterile sand. Room AI9 fully exposed at top.

The just slightly out-curved and 1.6 m. long south wall is lined with six slabs ranging from 30 to 60 cm. in length, and in height above the floor from 30 to 50 cm.; all are from 3 to 5 cm. thick. The slabs on the west butt closely, those on the east overlap slightly. No evidence of masonry was found for this wall. There are, however, additional slabs set just to the outside and slightly off center to the east. Two are closely aligned and parallel to the lining slabs at a distance of about 10 cm.; in combination they are 1.10 m. in length. More or less centered on these, parallel, and at a distance of ca. 6 cm. is a 60 cm. long slab. The tops of the interior two are about even with the tops of the lining slabs. The top of the outside example is 5 cm. lower. The exterior slabs are only set a few centimeters deep and appear not to have a support role as regards the lining slabs. Probably they represent one of the little box or bin-like constructions seen in remnant form with other rooms in the block.

Lining the east and west walls are slabs of moderate size, extending 30 to 50 cm. above the floor surface. The east wall is 1.0 m. long; the west is noticeably shorter at 0.80 m. A missing slab in the west wall has exposed masonry extending four to five courses below the adjacent slab tops, or about 2/3 of their heights above the floor. The east slabs are either in direct contact, or nearly so, with the west wall slabs of Room AI9.

Room AI1. This is a slab-lined room (Figs. 27,43-45) with at least base course masonry in evidence on the northwest, southeast, and northeast. Some slab tops were visible on the southeast at the onset of excavation. A pothole (Figs. 43,45) intruded the fill and floor in the west portion but did only minor damage.

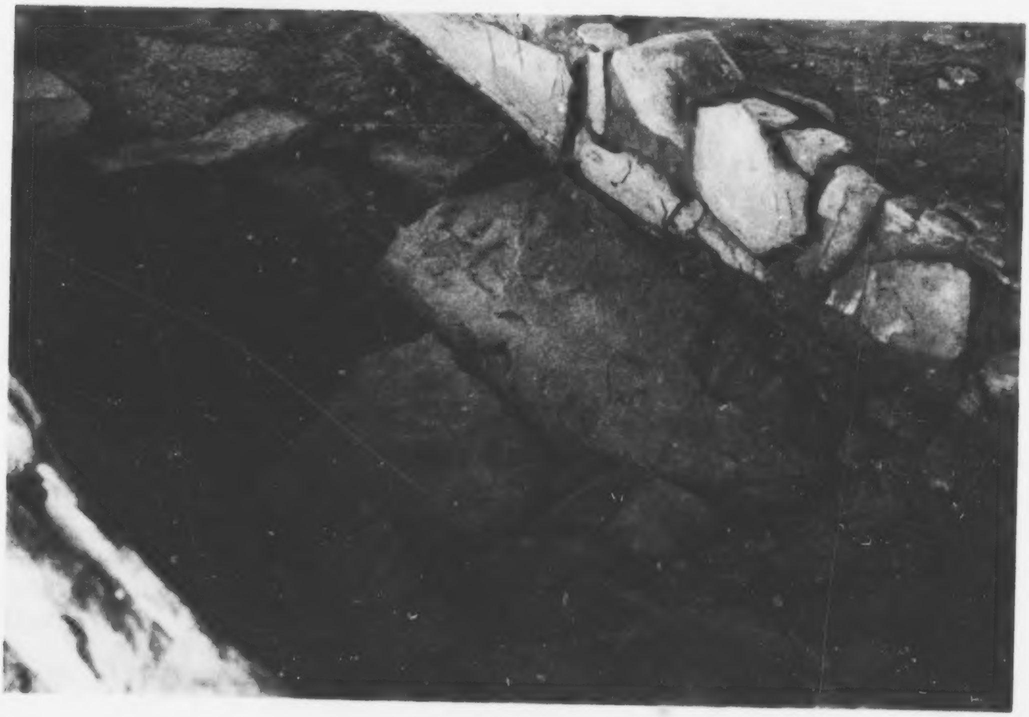


Figure 43. Detail of large floor stones in Room AI1. Southeast wall is shown plus the pothole that intruded the floor.

A single slab provides lining for the northeast wall. This is 105 cm. long, only 3 cm. thick, and extends up to 40 cm. above the floor. This is angled noticeably to the axis of the longer northwest and southeast walls. Behind the slab is the covered masonry noted with the description of the west wall of Room AI10.

The balance of the lining slabs for the other three walls are of more modest proportions, although some run to about 70 cm. in length. Little overlap is seen; rather, the slabs butt or are aligned and chinked. The northwest wall is lined with six slabs and is 2.7 m. long, the southeast wall shows five slabs and is 2.5 m. long, and the southwest wall is composed of two slabs and is 1.0 m. long.

Save for one gap, there is an alignment of blocks immediately outside the southeast lining slabs. These are of moderate size and rather narrow in relation to width. They were found set slightly below the tops of the slabs and were fully enclosed in Stratum A2 material.

The apparent base course masonry on the northwest is unusual for the room block as it is composed mainly of cobbles (Fig. 45) with just a few blocky, tabular pieces interspersed. This construction runs to ca. 40 cm. in width. There is only a 10 to 12 cm. gap between the southwest slabs of this room and the east wall slabs of Room AI12; this is partially filled by upright slabs of unknown height.

Clearing the pothole showed a single clay-over-stone floor with the stone in contact with clean Stratum A4 sand. Floor clay is about 2.5 cm. thick and presents a smooth, well-packed, but not appreciably stained surface. As was the case in many of the structures on site, the clayey fill of the room was in direct contact with the floor and was visually quite similar. A sharp tactile contact was found, as was usually the case, and the fill broke cleanly away from the floor.

Where exposed, the stone floor (Fig. 43) features large, dressed slabs (up to 98 by 45 by 5 cm.). Some smaller pieces were used to fill and tie, and extensive chinking is evident.

Some apparent wall fall was found scattered throughout the clayey fill that extends from the vicinity of the tops of the slabs to the floor. Fall to the outside was minimal on both long sides.

Room AI12. Alignments marking this well-preserved structure (Figs. 27,44) remnant were found under less than 15 cm. of loose Stratum AI blowsand. Some associated but out-of-place stone was visible at site surface.

The structure pit is fully slab-lined and there are masonry wall remnants immediately outside the slabs on three sides. Interior dimensions are 1.5 m. northeast to southwest by ca. 1.3 m. northwest to southeast. Slab height above floor surface ranges from 40 to 55 cm.

Ten slabs line the interior of the room. Seven of these are of similar size and fairly large, ranging in length from 55 to 80 cm. Three much shorter pieces were used on the north, south, and west to tie across the ends of

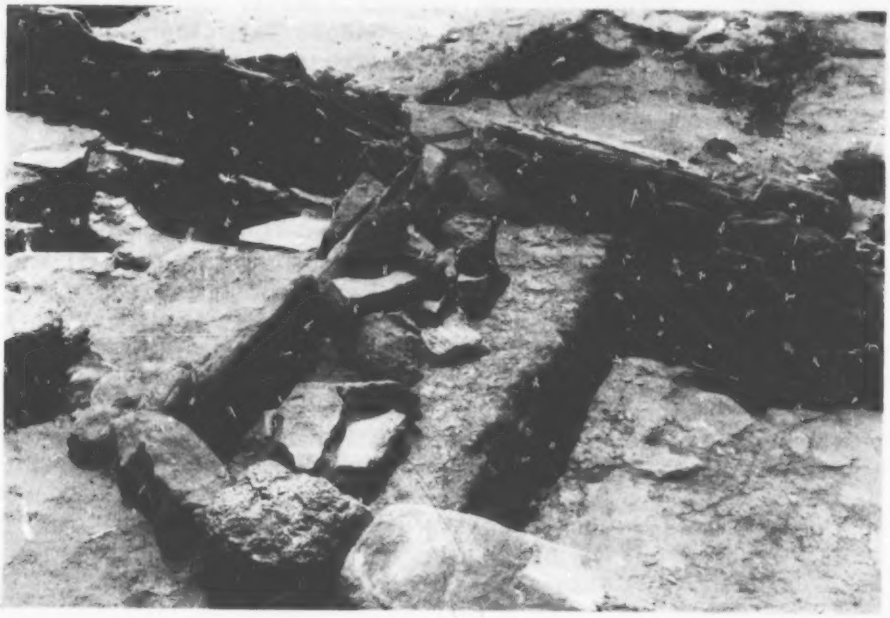


Figure 44. View of the southwest end of Room AI1 and the northeast end of Room AI2. Room AI2 is in section with stone concentration exposed.

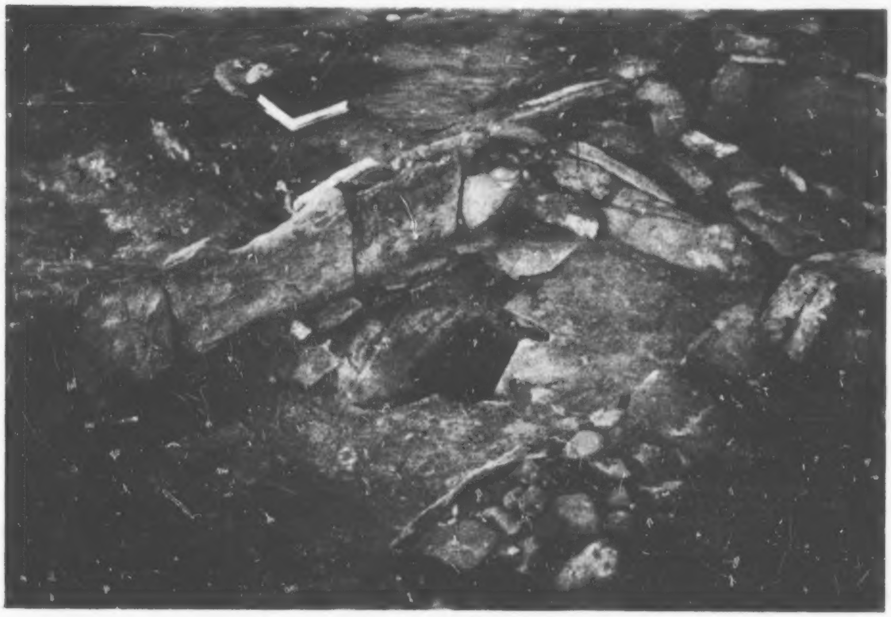


Figure 45. Room AI1 fully cleared and showing pot hunter damage to floor. Room AI2 is at top-right.

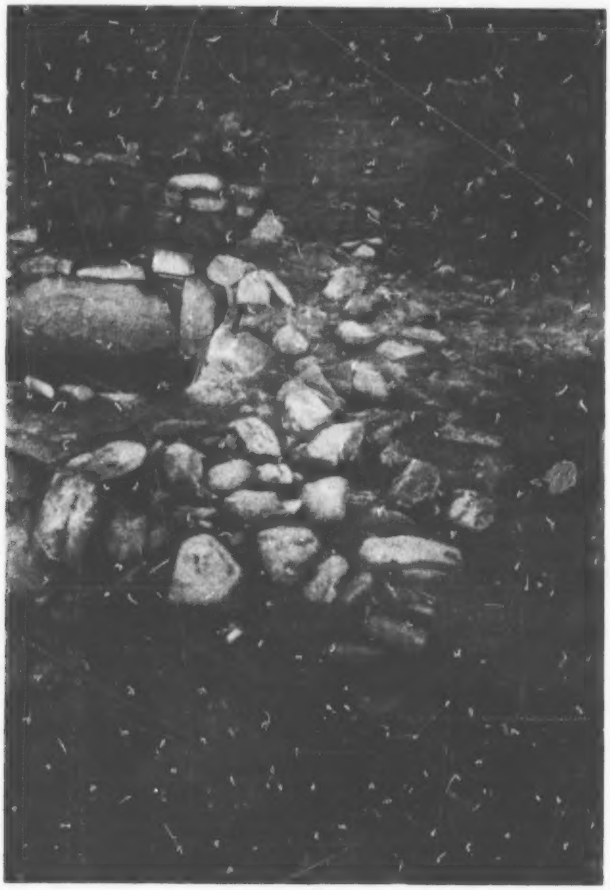


Figure 46. View of exposed wall fall to the northwest of Rooms AI12 and AI13.

adjoining major walls, forming other than square corners. The east corner is square, although the slab from the southeast wall extends to the northeast well beyond where the east wall slab butts against it. The slab does not tie across to Room AI11, however.

As noted for Room AI11, there is only a narrow gap (Fig. 44) between the northeast wall of Room AI12 and the southwest wall of Room AI11; this is partially filled with upright slabs. There was a good deal of blocky stone high in the fill of Room AI12. This was adjacent to the northeast wall (Fig. 44) and appeared to have come from the northeast. This was jumbled rather than shingled, but lay three deep and could be fall from a low masonry partition laid atop the slabs between the rooms.

The remnant masonry walls on the northwest, southeast, and southwest are well aligned, show up to three tiers in places, and feature several rather large (40 to 50 cm. long) but relatively narrow blocks. The blocks are tabular and relatively thin but are not noticeably dressed and are not the apparent split slab pieces noted for rooms on the east side of the room block. One stone used at the west corner is a substantial fragment of a granite metate.

From the tops of the lining slabs to the clay floor the fill of the structure was a rather homogeneous clayey sand with noticeable small gravel throughout, plus a few "lumps" of clay near the floor surface. Virtually all interior rock was atop this material on what appeared to be a weathered surface. Apparently, then, the structure pit had filled before the masonry walls collapsed. Little apparent fall was found outside the structure to the southeast. Fall was, however, abundant on the northwest, extending out about 1.2 m. and showing some shingling (Fig. 46).

Since this room was a prime candidate for stabilization, the clay-over-stone floor was explored only minimally. Just enough was done to establish that only one floor was present and that the stones were laid on clean sand. Rather limited exploration outside the room on the northwest showed what appeared to be rather light-colored Midden A2 material against the lining slabs; this extended well down along the slabs but not quite to floor level.

A unique feature of this room, at least in the site sample, is the presence of clay plaster on the northeast lining wall. Slightly less than 2/3 of the southern portion of the wall shows a thick (3 to 4 cm.) coat of material that is rather more similar to the fill clay (sandy and slightly "dirty") than to the clean clay on the floor. The plaster effectively makes the face of the wall flush where slabs are slightly offset.

Room AI13. This compact and nicely preserved storage unit (Fig. 27,47) is the only one in Room Block AI to show masonry remnants along all four sides. It is also the terminal storage room for the room block on the west, although Structure A2 is essentially contiguous off its south corner (Fig. 27.).

Wall slabs are much smaller than in the adjoining Room AI12 and several are overlapped, particularly in the northwest and southeast walls. Slab height above the clay surface of the upper floor is only 30 cm., at maximum. There is, however, a lower floor, so slab height for the original building would have been more on the order of 45 to 50 cm. Some of the slabs are only butts that extend just slightly above the clay surface of the upper floor, but apparently extend below the stone of the lower floor - others are essentially patches associated with the second building and rest on the lower floor surface. The northeast wall in particular shows evidence of patching, with one narrow gap on the south thickly filled with clay over a slab butt.

As with Room AI12, the base course masonry on the northwest and southeast is marked by long, narrow, tabular blocks; blocks in the common wall with Room AI12 are large but more squarish. Wall material on the southwest is much lighter and of less regular size.

Wall fall was found all around the structure, although it was rather light on the southeast and particularly heavy on the northwest (Fig. 46). Under the fall on the northwest a particularly well-defined band of clay wash was identified. This ran from against the base course stone to the northwest for 30 to 40 cm. and sloped down to the northwest noticeably. This was established on what appeared to be Midden A2 material, although here lighter in color than seen further to the south.

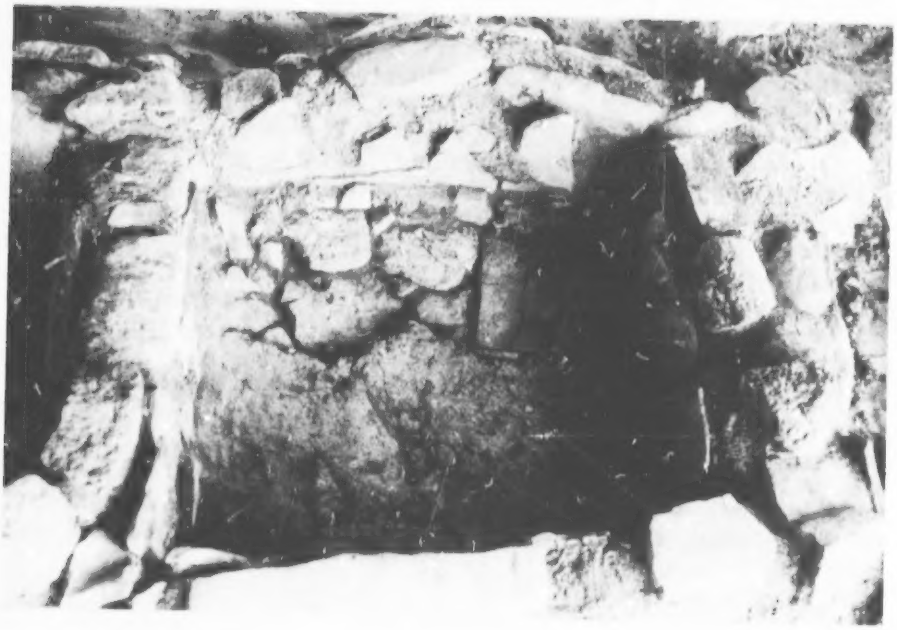


Figure 47. Detail of cleared and stabilized Room AI13. Floor stones exposed along southeast wall.

Fall on the interior of the room was restricted to a zone above the slab tops and was enclosed in Stratum Al material. Fill below the slab tops was clayey sand enclosing numerous "lumps" of harder, cleaner, lighter colored clay. On the clay floor surface was a very thin but consistent layer of tan sand. Stone in the lower fill was restricted to the east corner where there were numerous pieces of tabular sandstone 2 to 3 cm. thick. Also with this material, which extended to the floor, were several micrite artifact fragments and a few bone fragments. In short, this was trash dumped in the corner, presumably after the room was abandoned but before it filled and the walls fell.

As with Room AI12, only minimal definitional work was done with the floors. Stone in the upper floor (Fig. 47) was found to be generally small slab fragments, much overlapped and generally rather jumbled. This required a lot of chinking along the walls and an unusually thick (up to 8 cm.) layer of clay to seal the stone and provide for a smooth and level surface. The presence of a lower clay-over-stone floor was established but it was not probed.

Structure Al

Apparently represented here (Fig. 27,28) is a large, shallow pit structure. Outline is more or less round, but diameter varies from 5.80 m. to 6.70 m. Showing a central hearth (Fig. 48) and other minor floor features, this structure provides the only firm evidence on site for a habitation unit. The structure did not burn and evidence for type of roof or wall construction is slight. There are just a couple of possible postholes showing in the floor and there is an appreciable clay content to the sandy fill; probably construction was rather light but that is mainly speculation based on an overall impression of the nature of the structure.

The structure originates (Fig. 25) on or slightly within Stratum A4 sand; or, where the sand was apparently not present on the east, on the Stratum A5 gravel bar. On the east, the edge of the structure is only 0.8 m. from the west wall slabs of Room AI6, and less than 30 cm. from the little bin-like affair on the west of that room. The presence of the relatively high gravel between the two structures made reading of relationships difficult. Final field judgement was that the two were built at about the same time.

At the edges, the structure pit is from 10 to 25 cm. deep. The deeper portions are on the east where the pit is cut into the slope of the gravel. This did not, however, wholly accommodate the slope, and on the profile line, at least, a point just inside the west edge is 15 cm. lower than a similarly placed point just inside the east edge. Most of the slope is in the east half of the structure where the floor drops 18 cm. from just inside the pit edge to the edge of the hearth; from the other side of the hearth to the vicinity of the west edge, the rise is only 4 or 5 cm.

Pit walls are sloped and unlined except over the southeast ca. 1/4 of the circumference where they are nearly vertical and show several lining stones (Fig. 28). The lining stones are small, rough slabs or rocks set at or slightly above floor level (only one is set slightly into the floor); most extend slightly above the pit edge. Slightly over a meter east of the west termination of the vertical wall section is a 70-cm.-wide low area or gap in the wall that extends nearly to floor level. A small slab directly flanks the opening on the east but not on the west. This may represent an entry; nothing could be traced to the outside, however.

The floor of the structure is a thin (less than 1 cm.), rather fragile layer of clay on something over 1/3 but less than 1/2 of the pit interior, generally the southeast portion. This covers all the areas of exposed gravels but extends out over some sandy areas, also. The floor clay is cleaner and harder than the clayey fill that was in direct contact with it; the surface does not show appreciable occupation stain, but it was marked by decayed rootlets. The balance of the floor was simply the sand the pit was cut into. This was not stained or noticeably compacted and was identified mainly by being directly under the clayey fill, as was the separately laid clay surface.

The hearth (Figs. 28,48) found in the floor of the structure is about centered on an east to west axis, but is well to the south on a north to south line. The hearth is rather large, measuring between 1.0 m. and 1.35 m. across the rim, and between 71 cm. and 76 cm. across the interior pit.

As initially defined and exposed, the hearth appeared to be a relatively shallow (10-15 cm.) clay-over-stone basin with a raised rim of clay, and tabular stone set slightly down toward the interior (Fig. 48). Additional probing, however, exposed a vertical slab under the rim on the south side and three distinct layers of horizontal stone adjacent. The vertical slab is 38 cm. long and extends about 30 cm. above the lower horizontal rock, which extends out across the pit about 18 cm.

Obviously, then, the hearth is a rebuild; probably it was rebuilt at least twice. The original configuration was apparently a deep, slab-lined and slab-floored box that was later modified by laying a higher slab floor on residue in the pit. Final modification was much more drastic, involving removal of the northern portion of the feature and essentially building a new hearth over the remnants of the old.

Despite the extensive modification, most of the fill from the interior of the hearth area was a relatively homogeneous black ashy sand with some charcoal of appreciable size and a few artifacts. A radio carbon determination of 1480 ± 60 B.P or ca. A.D. 470 was obtained from charcoal from the hearth.

A relatively large floor pit is located ca. 70 cm. north of the hearth (Fig. 28). This measures 70 cm. east to west and up to 31 cm. wide. The short ends are rounded while the north and south sides curve slightly in and out, respectively. Walls are mainly slightly undercut and about 45 cm. high; the bottom is slightly concave. The pit is cut into Stratum A4 sand. Fill was a slightly darker (reddish cast) sand showing a few flakes and bits of charcoal.

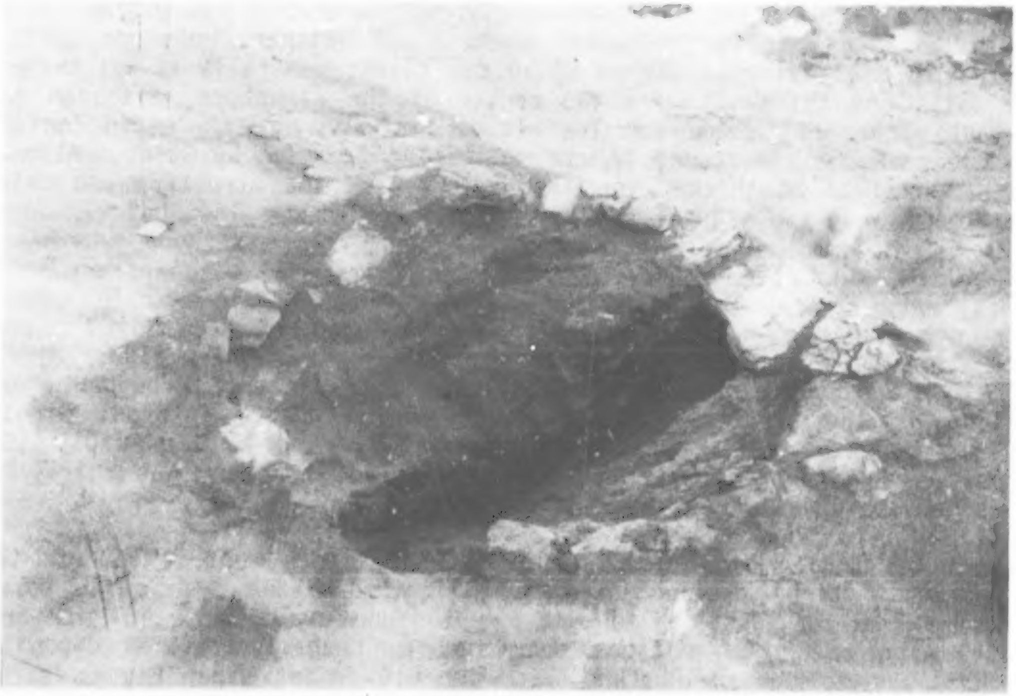


Figure 48. Initial definition and section of the hearth in Structure AI.

A small depression or shallow pit is just south of the hearth (Fig. 28). This measures 56 cm. by 38 cm., and is only 3 to 5 cm. deep. Fill was a slightly stained sand containing noticeable clay and charcoal. Adjacent on the southeast is a piece of tabular stone 25 cm. long and 3 cm. thick set just a few centimeters into the floor and extending about 5 cm. above the floor.

Between the smaller floor pit and the south edge of the structure were found two nicely shaped and dressed pieces of sandstone (Fig. 28). Both are nearly round in outline with diameters of ca. 46 cm. and ca. 59 cm., and both are thin and evenly tabular in section with thicknesses of 2 and 3 cm. Both, however, rested on fill 8 to 10 cm. above the floor.

Directly on the floor in the southeast portion of the structure is a sandstone rock 30 by 24 cm. and 18 cm. high. This shows no obvious modification and use is not known.

Four breaks or slight stains were noted in the floor surface that may represent post holes. Two of these are fairly large (25 and 30 cm. in diameter) at floor surface, the others are more modest at about 15 cm. in diameter. None of these, however, could be satisfactorily followed below floor surface and identification as anything other than floor disconformities is tenuous.

The fill of Structure A1 was sand with a very strong clay content and a distinctly orangish color. Minor charcoal was included along with a few artifacts. Probably the fill was mainly roof clay that had weathered, washed, and mixed with sand to the extent that it was neither lumpy nor particularly hard. The fill material was up to 18 cm. thick; generally it was thicker near the walls and thinned toward the center of the structure, although this was variable from area to area. The clayey fill was everywhere in contact with the floor of the structure; it was overlaid and sealed by Stratum A2 material, which tended to be thicker toward the center of the structure and thinner at the edges.

Structure A2

This structural remnant (Fig. 27) was ill-used by pot hunters prior to excavation, and then to some extent by the excavations, also. The trench (Fig. 22) used to explore the west midden area was cut through the southern portion of the structure in an area where extensive informal digging was obvious from the surface, and was eventually found to have badly disturbed deposits to a considerable depth. The digging, however, was fairly old and holes had essentially refilled.

Field notes for Feature 20 in the Feature 18 trench reflect a north to south alignment of three rectangular blocks (Fig. 27), one deep, with some stone scattered on the west, also one deep. Subsequent work in the area and profiles on both trench faces convinced the excavators that deposits were hopelessly mixed and the stone was removed without expanding to either the north or south. Probably the little alignment was a portion of the east wall of Structure A2, and while disturbance in the area was real enough, there was no doubt some haste in wholly blaming vandalism for what was seen or not seen.

The structure did not "surface" again until the subsequent season when Feature 107 was defined as an area of jumbled stone and possible alignments south immediately off the south corner of Room AI13. Following the feature, found buried under only a few cm. of loose blowsand, led directly to the north side of the old, refilled trench and to some embarrassment.

Finally defined (Fig. 27) was a portion of a rectangular structure, ca. 2.4 m. wide and something in excess of the 2.9 m. length worked with. The structure was built atop a considerable accumulation of occupational debris (Midden A2, in part), and was constructed after Room AI13, the final room in Room Block AI.

Masonry walls are indicated by extensive rubble and an apparent base course around a portion of the circumference of the structure. Rubble was mainly restricted to the defined interior of the structure and showed only minor indications of fall-patterning. Stone was apparently selected for squarish to rectangular shape, but showed no shaping or dressing.

At and adjacent to the north corner, a low (10 to 15 cm.) earthen pit wall is present. This decreases in height with distance from the corner, and eventually disappears altogether. Apparently, this is simply an accommodation on the part of the builders between existing ground slope and the desire for a level floor. The level floor was produced by cutting slightly into the gentle slope and leaving an earthen wall on the high side. Two or three rocks in the vicinity of the north corner could be rough lining stones but are more likely from the lower masonry courses and have slipped into the shallow pit. Only a few other stones are apparently in place as base course away from the shallow pit edge; these all appear to be set at floor level with no footings in evidence.

The floor of the structure is vague at best. Apparently it is only a leveled and then use-compacted surface on the Midden A2 material. However, since the structure apparently burned, and since there was appreciable clay in the walls and probably the roof, there was a noticeable difference between the structure fill and the deposits the floor was made on. This was not as striking as could have been hoped for, but it at least provided a definition that could be followed. Also helpful, once its origin became evident, was a thick layer of rather dirty clay that covered some portions of the floor, particularly near the walls. This was finally obvious as a wash line from the walls rather than the separately laid clay floor it initially was thought to be.

Evidence of burning was not extensive, consisting mainly of small pieces of burned clay and wood and a general dark cast to the sandy/clayey fill. Cultural debris was fairly abundant in the fill but was abundant in the material the structure was built upon, also. A large trough metate (Fig. 80a) was found near floor level along the east wall. No other major artifacts or artifact concentrations were noted as floor associates.

While no hearth was found in the section cleared, the structure is taken to be a habitation unit associated with use of a portion of the big room block. Size, wall construction and floor treatment are all in marked contrast to the storage units and strongly indicate a different use. At about the level of the base course stones, use/occupational surfaces are more or less identifiable outside the structure to the northwest and southwest; much of the area on the northeast, however, has been disturbed by potting. There may still be a small section of the structure in the unexcavated area southeast of the test trench, although there is obviously disturbance in the area; there could also be additional contiguous structures.

Cist A1

This is a small, nicely constructed slab-lined cist (Fig. 27) measuring about 45 cm. in outline size and 38 cm. in depth. Five slabs of similar outline size (26 to 30 cm. wide) are vertically set to line most of the pit walls; a sixth slab is only 15 cm. wide, and a small gap between two slabs is chinked with small cobbles.

The floor is a thin layer of clay over horizontal slabs; floor-wall junctures are extensively chinked where gaps exist. Wall slabs extend slightly below the floor slabs. Fill consisted of an upper 15 cm. of clay and rock rubble, an intermediate ca. 13 cm. of sand and appreciable gravel, and a lower 10 to 13 cm. of hard-packed clay. The cist was found under only a few centimeters of sand. It is cut into bar gravels which are quite high in this area.

The cist is only about 10 cm. from the southeast corner of Room AI4 but shows no obvious direct relationship to the room. Any evidence of relationship to Room AI3 was obscured by the vandalism (Fig. 27) that destroyed the eastern portion of the room. Projection of wall alignments, however, plus the general curve of the back of the room block, would place the northeast corner of Room AI3 within the limits of the cist. Based on what is seen with the storage rooms on the rest of the site, it is much more probable that the cist was a later intrusion into the corner of the room than that the cist and room formed an integral unit.

Outdoor Firepits

Firepit A1. This feature (Fig. 27) was initially defined as a concentration of burned rock and dark sand, and did not develop much further via full excavation. It is a shallow, basin-shaped pit or depression containing several small stones and tabular sandstone fragments in a general context of ashy, charcoal-stained sand. Some of the tabular pieces may be lining stones, but there is nowhere near a full lining of stone, and there is no evidence of a rim.

The feature is nearly round, 70 to 75 cm. in diameter., and up to 12 cm. in depth. It originates a few cm. above the surface of stratum A4 and is cut into that very light colored material. It is covered by ca. 12 to 15 cm. of Stratum A2, which is fairly shallow in the vicinity. The closest structure is Room AI3 at a distance of 6-5 m.

Firepit A2. This feature, located 2 m. west of Room AI7 (Fig.27), shows indications of having been a well made and substantial construction, but was in rather poor shape when excavated. Exposed by excavation were a few more or less fitted, horizontally laid pieces of tabular sandstone with even fewer pieces set at rather low angles adjacent to the horizontal material and about the perimeter of a shallow pit. Some blackening is evident on the stones and some ash and dark dark sand was in the fill, which was mainly the also overlying Stratum A2 material.

Diameter of the earthen pit containing the stone lining is ca. 90 cm., depth is 10 cm. The feature was found ca. 30 cm. below site surface and was cut into the fill of Structure A1 along the structures northern edge(Fig. 27).

Firepit A3. This apparently damaged construction is probably the remains of a firepit, but direct evidence of such use is rather minimal. The feature is a shallow basin, ca. 8 to 10 cm. deep, with some rock and clay about the lip, indicating a clay-and-stone rim. A few small tabular pieces of sandstone are on the bottom along with some thin patches of clay, again indicative of a clay-and-slab lining. Overall diameter is fairly constant at about 90 cm.

Location is 2 m. south of the south wall of Room AI9 (Fig. 27). Level of origin and association is with Stratum A2. Fill was not noticeably different from the seal of Stratum A2 material removed to expose the feature. Size, shape and indications of construction detail are "right" for a firepit and it is probable that this represents such a feature, scoured and somewhat abused before it covered.

Firepit A4. This is a shallow basin-shaped feature, located 2 m. southeast of the southeast wall of Room AI11. (The firepit originated within Stratum A2 and was likewise covered by that stratum. Both this and Firepit A3 are also associated with a reasonably well-defined (but defined very late in the excavations) use or occupation surface to the front of Rooms AI10 and AI11. About 1/3 of the feature shows portions of a sandstone slab-and-clay rim; the same area shows badly fragmented tabular stone pieces lining the surface sloping toward the bottom. A vague outline was traced accounting for the balance of the pit perimeter, but no evidence of additional rim or lining was noted.

Fill in the basin was an ashy sand only slightly darker than the overlying Stratum A2 material. Diameter is in the vicinity of 80 cm.; maximum depth is about 10 cm.

Use or Occupation Surfaces

After excavation in Area A was well along, several areally restricted, no doubt (by that time) remnant surfaces were finally defined that are of the sort described in more detail for Area B, below. Most often, these were closely associated with one structure or another, and were seen as limited wash lines, areas under wall fall, etc., and never proved useful in establishing relationships between events or structures. Surfaces or use areas of large extent were not convincingly established, although something of a reasonable surface was worked to the front of Rooms AI10 and AI11 that apparently involved outdoor Firepits A3 and A4; this came near the close of excavations, however, when there was little left elsewhere that could be related. An early opportunity to follow what could have been an informative surface was probably missed when the sharp contact between the fill of Structure A1 and overlying Stratum A2 material was not pursued beyond the limits of the structure.

Midden A1

This is a rather large midden area on the east portion of the site (Fig. 27). It lies on the relatively gentle and even slope east of (and behind) several of the rooms in the core portion of Room Block AI. It was first defined with one of the initial test trenches that also cut through Structure A1 and across Room AI6. Definable midden is very close to the trace of the northeast wall of Room AI6, but pulls back slightly from adjacent rooms. Besides the initial trench, three large cuts (Fig. 22) were taken out of the "heart" of the midden, partly to increase artifact sample and partly to siphon off excess help, the few times such a luxury was available.

The midden is up to ca. 50 cm. thick. This thickness is reached between three and four meters east of the east wall of Room AI6 and holds for about five meters on east where it begins to thin fairly rapidly. The extreme northern limit was not defined and the deposit was still ca. 15 cm. thick at the north margin of the excavation units (Fig. 22). On the south, the deposit feathered-out rapidly over high gravels encountered east of Room AI4.

While not in contact with Stratum A2, the general cultural stratum over much of Area A, the midden deposit was distinct in color and composition from the stratum. The midden material was quite dark when damp, becoming rather brownish and trashy-looking when dry; it carried no reddish cast as did the stratum. There was substantially more cultural debris in the midden, including a lot of sandstone fragments that probably represent construction waste. Still, this was not an intense or particularly rich deposit as regards artifacts, and return was only moderate (Tables 2,4,6).

The deposit became lighter both in color and debris content with increasing depth, but it was not definably stratified and was dug in arbitrary vertical units. Save on the south where the gravels of Stratum A5 were encountered, the midden lay on clean, yellow sand, apparently Stratum A4.

This is definably the earlier of the two midden deposits in Area A, probably by a substantial period of time. The way it lies in relation to Room Block AI, there is some reason to suspect that it began to develop in association with an old room alignment north of the Area A excavation limit. It was probably still in use until most of alignment of shallow, smaller rooms (Rooms AI5 thru AI11) were added south off Room AI6; with the entire alignment in place, the midden was totally cut-off from the interior of the room block.

Midden A2

This deposit (Fig. 27) is on the west side of Area A. It was explored with only a single east-west trench, but was encountered on the north and east by work involving Structure A2, and Rooms AI12 and AI13. North, east and west limits are thus at least partially defined; there is no excavation control on the south limit and the deposit generally does not show well from the surface, save where it has eroded.

The single midden trench generally followed a fairly marked little water course off the ridge flank. This was broad, shallow and barely noticeable at the head, but becomes well-defined and moderately steep east of Structure A2. There was still apparent midden deposit at the east limit of the test trench but it was thin and may have been wash rather than *in situ* material.

Where not badly potted or involved with Structure A2, the deposit showed a maximum thickness of 55 cm. The heart of the deposit was very dark, almost black in color when damp, but became much lighter and rather ashy looking when fully dry. Over most areas in the test trench, the deposit was quite loose and did not maintain trench walls well at all.

The deposit was reasonably well defined as a separate unit behind (north of) Rooms AI12 and AI13, but was not nearly as dark as elsewhere. Here it was found below wall fall and debris associated with the collaspe of the little rooms, which in turn were covered with only Stratum A1 blowsand. The apparent midden deposit was found to extend well down along the lining slabs of the rooms and more or less graded into clean, yellow sand. The little rooms at the end of the room block, then, were apparently placed out over the edge of a developing midden area. The floor of Structure A2 was without question established on the midden deposit, quite thick and dark in that area.

Excavation Area B

This southern area of excavation (Fig. 49), while appreciably smaller in areal extent than Area A, contains a large complex of features that span a considerable period of time. Present are two small alignments of storage rooms (Room Blocks BI and BII); six storage cists, five of which are quite large; four outdoor firepits, two in close but exterior structural association; mainly limited in area extent but fairly well-defined use or occupation surfaces; a nonstructural concentration of stone; and an apparent but unexcavated midden area. Also from Area B are the only restorable ceramic vessels from the site, most of these recovered from one storage room (Fig. 50).

While the Area B occupations cannot be closely tied to or ordered with those in Area A (see Site Stratigraphy, above), internal relationships are rather clear (Fig. 26). An early, apparent Pueblo I occupation is represented by Cists B2 through B6. This is viewed as quite early since the big cists have a distinct Basketmaker III flavor, also. It was not possible to isolate a building sequence for the cists; appealing is the notion that the larger Cist B4 went in first and was subsequently flanked to either side by units of decreasing size (Fig. 49), but this was not demonstrated.

Room Blocks BI and BII apparently both reflect Early Pueblo II occupations. Room Block BI is viewed as the earlier of the two. It was built partially on spoil from the storage cists (Fig. 53) and extended slightly out over the filled pit of Cist B3 (Fig. 62). The relationship between Room Blocks BI and BII, while a little tenuous, is established by reference to state-of-repair, projection of use or occupation surface levels, amount of cover, and possibly the stone concentration.

Room Block BI

This is a curving alignment of structural remnants (Fig. 49) at the north limit of the Area B complex. It is composed of four separate elements, the east three obviously being the remains of storage rooms, although this is abstracted mainly from the presence of solid clay-over-flagstone floors - few

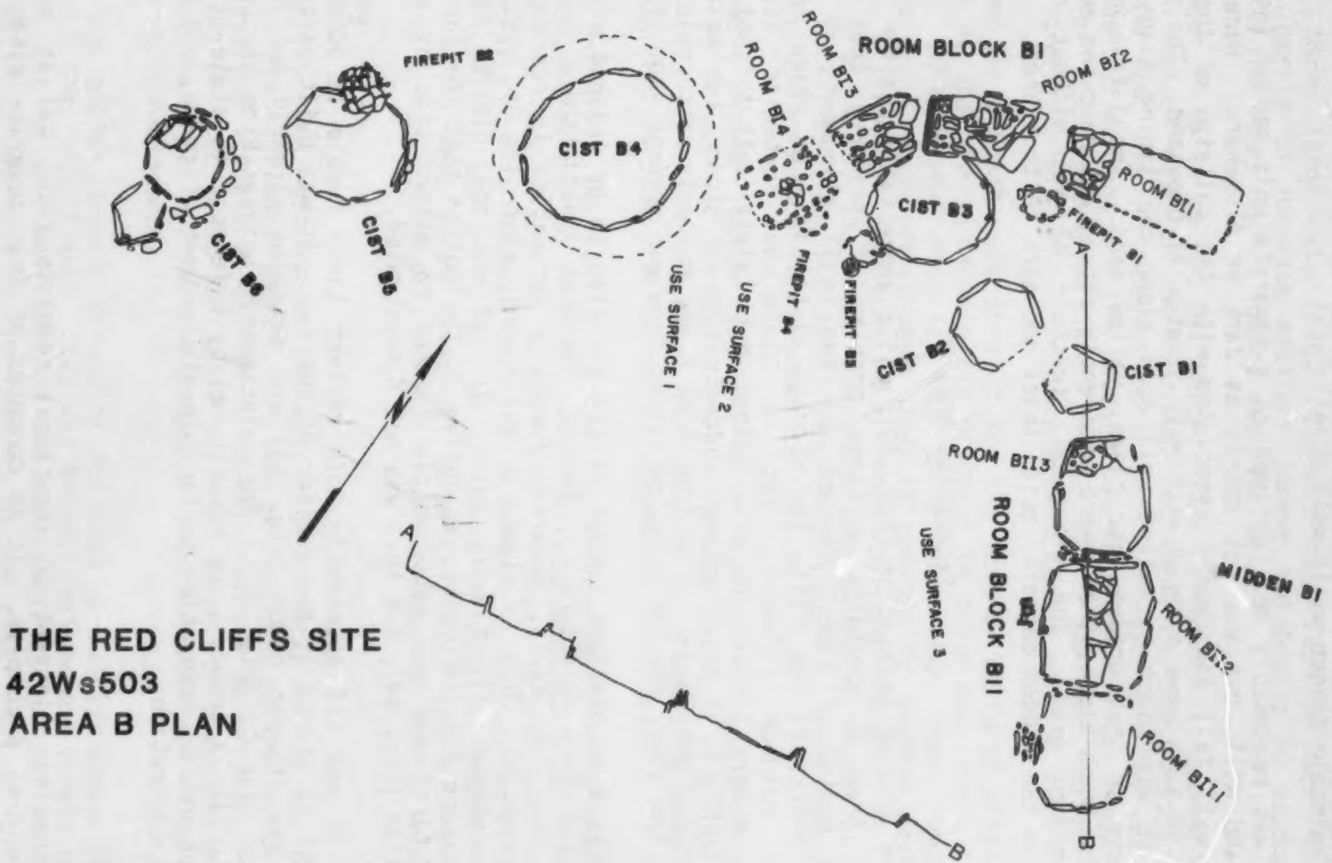

THE RED CLIFFS SITE
42Ws503
AREA B PLAN
ROOM BLOCK BI
ROOM BI2
ROOM BI3
ROOM BI4
ROOM BI1
FIREPIT B1
FIREPIT B2
FIREPIT B4
FIREPIT B5
CIST B1
CIST B2
CIST B3
CIST B4
CIST B5
CIST B6
USE SURFACE 1
USE SURFACE 2
USE SURFACE 3
ROOM BLOCK BII
ROOM BII3
ROOM BII2
ROOM BII1
MIDDEN B1
A
B
N
0
5m.

Figure 49. Final feature plan and selected profile map of Area B.

wall features are intact. The fourth unit is probably a slightly different kind of structure. It has been badly damaged, however, and could be a remnant storage room.

The little arc measures 7.2 m. across the mouth and is 1.5 m. deep. Firepit B1 (Fig. 67) is close to the rooms but appears to be somewhat later in time (see below). Much of the area to the front (south) of the arc showed a mass of jumbled stone that made surface definition difficult. This did not appear to be rubble from masonry walls associated with the storage rooms; rather it appeared more as dump material, but from where was not determined.

The room block is definitely younger than the big Area B cists. In plan, Room Block BI and Cist B3 appear to comprise an integral unit. Stratigraphically, however, it was convincingly demonstrated (Fig. 63) that the cist had collapsed and wholly filled before the room block was constructed. Partly on the basis of state-of-repair, it is assumed that Room Block BI predates Room Block BII; this was not wholly demonstrated stratigraphically, although there is some evidence garnered from work with the occupation and use surfaces (see below) that indicates the assumption is valid. No firm relationship was established with the big Room Block AI. As pertains to repair, Room Block BI is in much worse shape than the north and west sections of the big Area A arc, but is in a state similar to the south portion. Stylistically, however, the BI rooms do not appear as old as the deep, central rooms in Room Block AI. Probably, then, Room Block BI fits somewhere within the time covered by Room Block AI, perhaps during a hiatus in the development of the larger block.

Room BI1. Located on the east of the arc (Fig. 49), this is the larger of the rooms, measuring ca. 3.0 m. long east-west and from 1.0 to 1.2 m. wide (slightly wider on the east). Only a tightly sealed and carefully constructed floor marks this as a storage room, there is not piece one of wall slab or masonry extant (Fig. 51). A shallow structure pit was identified and there was up to 20 cm. of obvious structural fill over the floor surface, so the room probably had low wall slabs. Outside masonry is strongly suggested by the size and shape of the room, as well as by the breath of the gap between the west edge and the east edge of Room BI2, but it is not directly demonstrated.

Where exposed, the floor stones are nicely fitted slab pieces of moderate size (Fig. 49); some cobbles are in place as tying and chinking stones. On the west and south, particularly, are relatively intact lines of small edge-set cobbles right at the margins of the horizontal floor stones and extending just a few centimeters above the clay floor surface. These are thin and tabular and of similar size. Floor clay is 2 to 4 cm. thick and presents a well-smoothed, compact surface (Fig. 51) that rises slightly toward room margins. Unusual in a storage room, the clay surface carries a noticeable stain.

Since there are no containing slabs, and only a vague pit outline, structure "fill" is defined by placement, content, and nature. Over most of the structure, the upper portion of the fill was a loose, reddish, sandy clay, somewhat trashy, but quite consistent. In addition to covering the room outline, this material was seen as "spill" out from the floor edge for from just a few centimeters up to about 30 cm. This material extended to floor

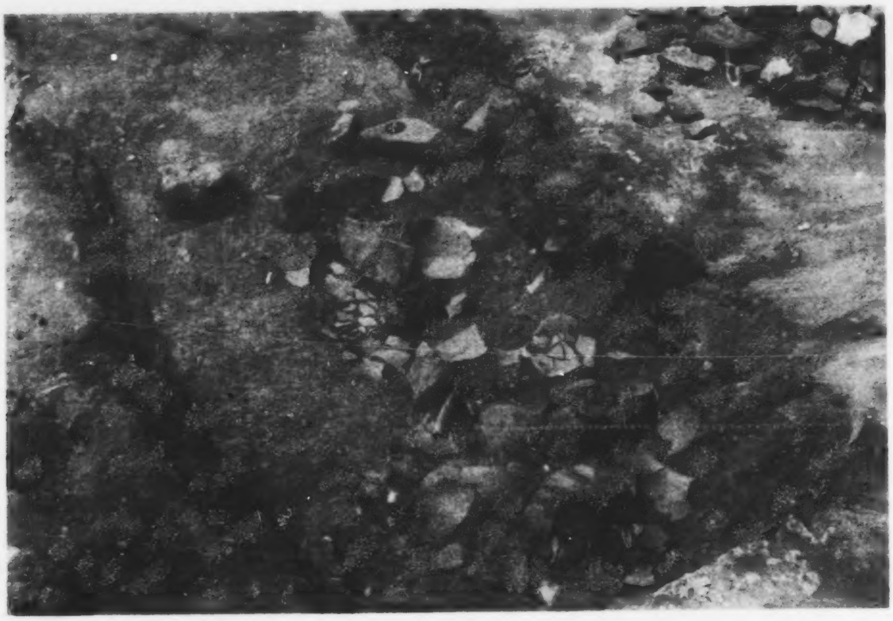


Figure 50. Room BI1 with sherd mass partially exposed

Fig. 51 Room BI1 fully cleared. Note anvil at top center.

surface in a few places, but generally in floor contact was a harder, lighter, rather lumpy clay. Over the east 1/4 of the structure area, the upper clay was less noticeable and there was appreciable whitish, sandy material present to within 10 to 12 cm. of the floor; material covering the floor in the northeast corner was unusually hard and showed some ash and other evidence of burning.

In total, structure fill was 15 to 18 cm. thick. Lying on the upper fill over part of the west half of the room was a more or less single layer of jumbled stone (see Stone Concentration, below). This was contained within ca. 15 cm. of Stratum B2 material, which also covered the balance of the fill and brought total depth of deposit from site surface to structure floor to only about 30 cm.

Essentially, the entire inventory of restorable ceramic vessels from the site is from this room. These were found in a dense concentration of sherds (Fig. 50), mainly confined to the northern 2/3 of the eastern 1/2 of the room. Material was both in floor contact and contained within the fill. During excavation, it appeared that two of the jars had been crushed in situ on the floor, and it was initially assumed that all the vessels had been integral to the room and were broken when it collapsed. However, final weight of the evidence strongly indicates that all the ceramic material was dumped into the room and postdates its final occupation use: all of the restored vessels have pieces missing, sherds to some vessels were widely scattered vertically and horizontally, in addition to the vessels there are several restorable panels and numerous extraneous sherds, some stone and burned clay and soil were mixed with the sherd mass, the mass of sherds and containing material was seen to thin noticeably from north to south - both vertically and horizontally.

There are, however, a few of what appear to be legitimate floor contact artifacts and, as noted, the floor shows a rather marked, dark stain; both situations are viewed as quite unusual for storage rooms. Further, it is difficult to envision how lining slabs could have been pulled and the small stones outlining the floor left intact. It thus appears probable that the room saw further use after the slabs were removed and it was abandoned as a storage facility.

In part, the room was build over what was identified as spoil from the original digging of the big Area B cists (see Site Stratigraphy, above). This material was quite evident between the room and Room BI2, as well as to the north along the western 1/2 of the room. The northeastern portion of the room, however, was set on gravels.

Room BI2. This is a smaller storage room remnant (Fig. 49) west of Room BI1. It is somewhat irregular in shape in that the east edge is longer (1.30 m.) than the west (1.0 m.) and the northeast and southeast corners are well off 90°. The north edge is 2.0 m. in length and the south 1.6 m. There is only one small slab butt in place this about midway along the north wall trace. There is, however, an obvious footer trench on the east that is 9 to 10 cm. wide and extends 2 to 3 cm. below the floor stones.

The single clay-over-stone floor features rather large and relatively thin tabular sandstone pieces. The bigger stones are not particularly closely fitted and show extensive use of smaller tie and chinking slabs and cobbles. The clay surface is smooth and unstained; thickness is up to 6.0 cm.

Figure 52. Detail of a portion of the stone floor of Room BI2. Stabilized structure.

The floor slopes down noticably from east to west over the eastern 2/3 of the structure and then more or less levels out to the west edge. The east portion of the floor is about even with the floor of Room BI1, but the west portion is markedly deeper (18 cm.) than the floor of the adjacent Room BI3.

As with the other rooms in the arc, there is no direct evidence of exterior masonry walls. The gap between Rooms BI1 and BI2, however, is large (0.40 to 0.60 m.) and would easily accomodate end slabs for both structures and a substantial block wall. This area further appeared to have been excavated into the clean, whitish, spoil component sand (Fig. 53) slightly below the level of both floors, but no other construction evidence remained. The gap between the adjacent end walls of Rooms BI2 and BI3 is less wide, but would still support both slabs and masonry; this likewise shows the spoil component material (Fig. 53) to be present.

The fill of Room BI2 (16 to 20 cm. thick) was generally the reddish sandy clay seen in most structures on site, although it was not as homogeneous here as in some. It was lumpy near the floor, somewhat trashy above, and contained a great deal of tabular sandstone. The tabular material appears as broken slabs, rather similar in outline form and size (range to 20 by 13 cm., average about 16 by 10 cm., thickness 2 to 10 cm.). Over the definable structural fill was the rock described in Stone Concentration, below, contained within

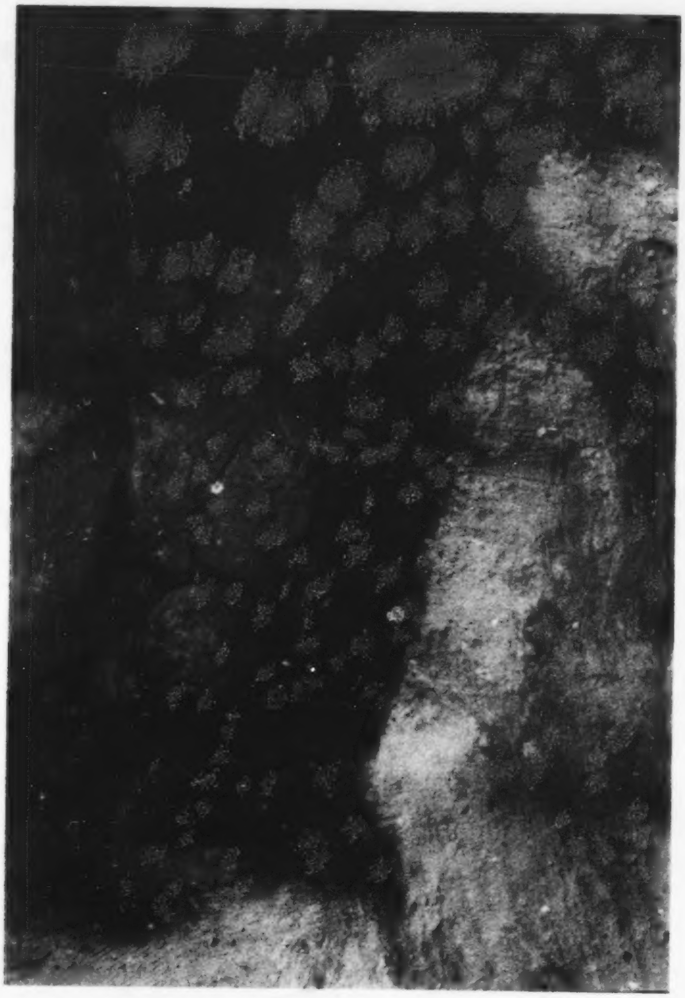


Figure 53. Detail of the west end of Room BI2. Shown is the footer trench for missing slabs that cuts into the light-colored spoil component.

about 20 cm. of Stratum B2 material. In the north central portion of the room, Stratum B2 material reached the floor surface in a ca. 15 cm.-in-diameter spot; apparently there was a small intrusion through the fill in this area, but nothing obvious was defined during excavation.

Most of this room appeared to have been built on the sand of the spoil component. Only on the extreme south where the room was very close to Cist B3 was there none of the distinct whitish material underlying the room.

Room BI3. This small, trapezoidal-shaped room (Fig. 26) was found under about 15 cm. of Stratum B2 material. The northwest wall is defined by one very long, markedly out-sloping slab (112 cm. long by 25 cm. above floor level by 4.0 cm. thick) and a much smaller slab (30 cm. long) that angles in noticably from the line of the large one. The southeast pit wall is marked by two slab butts of similar size, one-to-another, that total 90 cm. in length; no slabs were found along either the southwest or northeast edge which are each about 1.0 m. in length. Both edges are well-marked, however.

Floor stones (Fig. 49) are generally smaller in outline size than those in Room BI2, but they are also thicker and heavier and several are tabular cobbles rather than sandstone slabs. Up to 5 cm. of reddish clay covers and seals the floor stone; this shows a hard, smooth, unstained surface. Only one floor is present.

Fill was about 20 cm. of sandy clay, essentially undifferentiated and containing only minor amounts of stone. The stone found concentrated over portions of the fills of Rooms BI1 and BI2 was not evident here.

The northeast and southwest edges of the room are parallel to the near edges of the adjoining rooms. Distance separating the rooms is 20 cm. on the eastward side and 30 cm. on the southwest. Floor surface is about even with that of Room BI4, but is 18 cm. above the floor of Room BI2.

Room BI4. This feature (Fig. 49) appeared to be rather badly damaged when excavated (Fig. 54), but probably never was very substantial. Found under 20 to 25 cm. of Stratum B2 material was an area of small (or broken), thin, horizontal sandstone slab fragments plus some small cobbles. This area is enclosed on the northwest and southeast by more or less continuous lines of

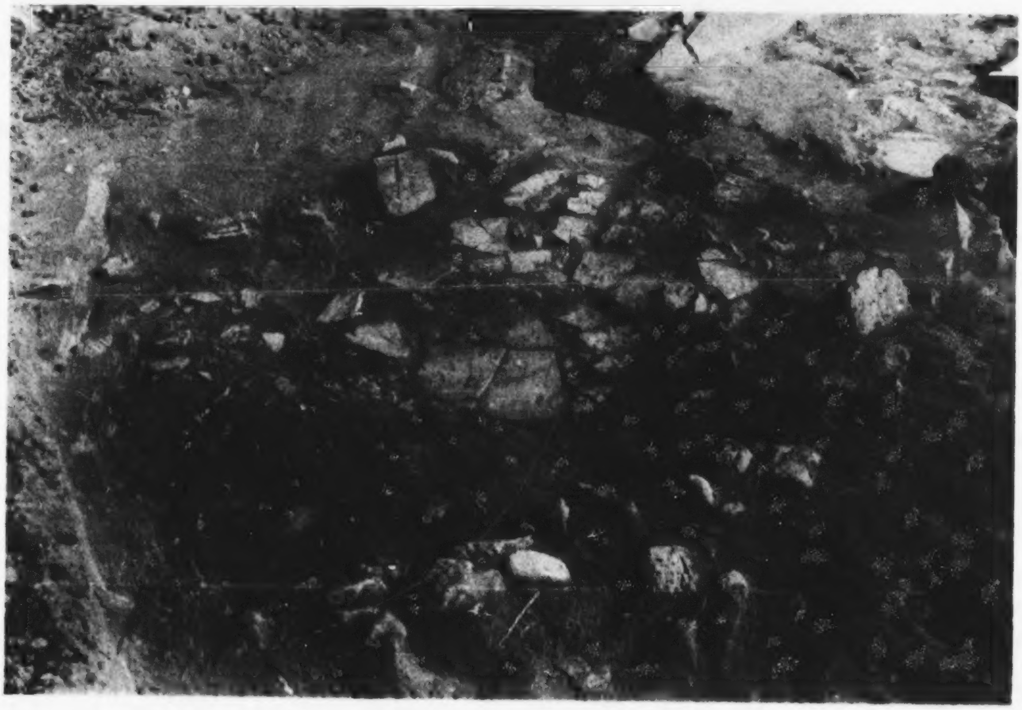


Figure 54. Room BI4. Room BI3 is visible in the upper right.

small, vertically set slabs or possibly butts of larger slabs. The northeast and southwest ends of the supposed room are defined only by the edges of the horizontal material. On the southeast, there is a partial row of small aligned cobbles inside the little slabs; some fairly heavy stone rubble covered both southeast alignments but showed no patterning, and was not necessarily associated.

The interior horizontal stone does not form a full pavement. While there was some clay noted in apparent association, there were no good indications that the stone was either clay covered or set in clay. The stone is laid on what is apparently Stratum B2a sand, and there is no indication of an earlier "floor" or continuation of the feature.

While functionally obscure, the feature does provide important stratigraphic/relational data. It is set on several centimeters of material (Stratum B2a) that, in turn, lie on a well-defined line of clay wash from the above ground portion of Cist B4 (see Use or Occupation Surfaces, below).

There is a little construction of somewhat dubious use immediately outside the southeast alignments (see Outdoor Firepit B3, below). The feature is obviously associated with the room, but contemporaneous use is not necessarily demonstrated.

Room Block BII

This is an arrangement of three contiguous rooms located at the south limit of excavation (Fig. 49). The alignment is straight rather than curved and orientation of the long axis is northwest to southeast. Immediately east is a relatively steep little slope down the flank of the ridge that shows some surface stain and cultural debris (see Midden B1, below); on the west is a level area that contains the use area associated with the rooms (see Use or Occupation Surface 3, below). Just south of the southmost room, the ridge narrows and begins to steepen (Fig. 21) and the cap of sand becomes quite thin; the ridge levels and widens again, however, and there are obvious and probably appreciable cultural phenomena on the extreme south end (Fig. 9).

The three rooms all appear to be storage units, generally similar to others on the site. All show slab-lined walls and carefully sealed clay-over-stone floors. Rooms BII1 to BII2 (Fig. 55) are more similar one-to-another in that both show numerous and relatively light wall slabs, both are relatively shallow, and both have a little pavement or bin on the southwest/front side.

Save for the tops being snapped off most wall slabs, all three rooms are in excellent condition, particularly considering that the extant slab tops were covered by only a few centimeters of sand. In view of the good state of repair and the fact that not a single stone was found close along the outside of the slab walls, it is inferred that these units did not have the low masonry walls behind the slab walls that mark the Room Block AI constructions.

The rooms are the latest constructions in the Area B complex and may be as late as anything on site, although there is no way to directly relate them to the Area A structural assemblage. The relatively small Cist B1 (Fig. 49), while not directly tied to the north room, stratigraphically belongs with the BII block. It is, however, described with the other, larger Area B cists.

Room BII1. This is the south most of the rooms and the most southerly feature exposed on site (Fig. 49). It is rectangular in plan, modified slightly by the south corner and southeast wall. Interior length is ca. 1.90 m. and interior width is ca. 1.50 m. Slab tops were encountered under only 3 to 7 cm. of blowsand and apparent Stratum B2 material.

The room (Figs. 55-57) is in a shallow pit, the southern end of which is cut slightly into light gravels. Walls are lined with 16 sandstone slabs of widely varying sizes (0.15 to 0.60 m. in length) set on "ends" or "edges" and sloped back noticeably from the vertical. All slabs are quite thin and nearly all show some breakage from their tops. Slabs extend from only a few centimeters below the floor stones to 25 cm. above the clay floor surface. Slabs were apparently exposed to a height of 8-10 cm. above the use surface on the westward side.

Slabs are generally set end-to-end, although there are two or three instances of overlap. There are small gaps in the slab lines in the northeast wall and at the west corner; the corner, at least, appears to have been rock filled. There are a few small tie and/or chinking stones at slab junctures and floor level along the walls. About midway along the southwest wall is a markedly larger stone (Fig. 57) covering a juncture and extending up through the full floor to within ca. 8 cm. of the extant slab top. Slab tops of the adjacent walls of Rooms BII1 and BII2 nearly touch (Fig. 56), but bases are separated by about 15 cm.

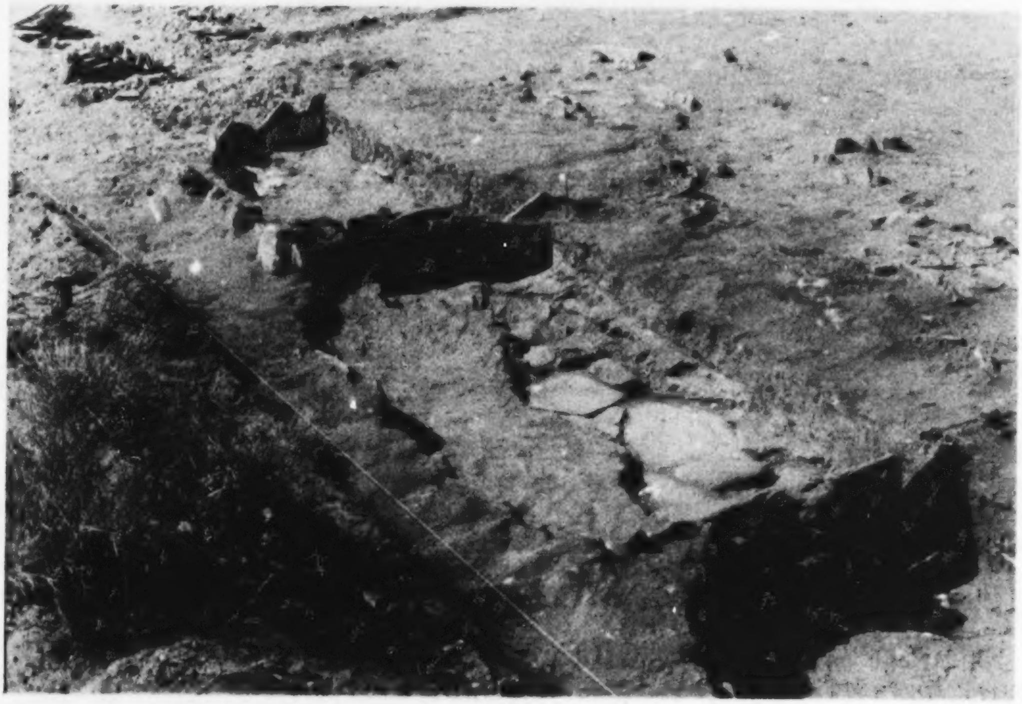


Figure 55. Rooms BII1 and BII2 in section. Balance of alignments, the associated bins and Use Surface 3 are visible to the right (west).

Figure 56. Detail of Room BII1 in section.

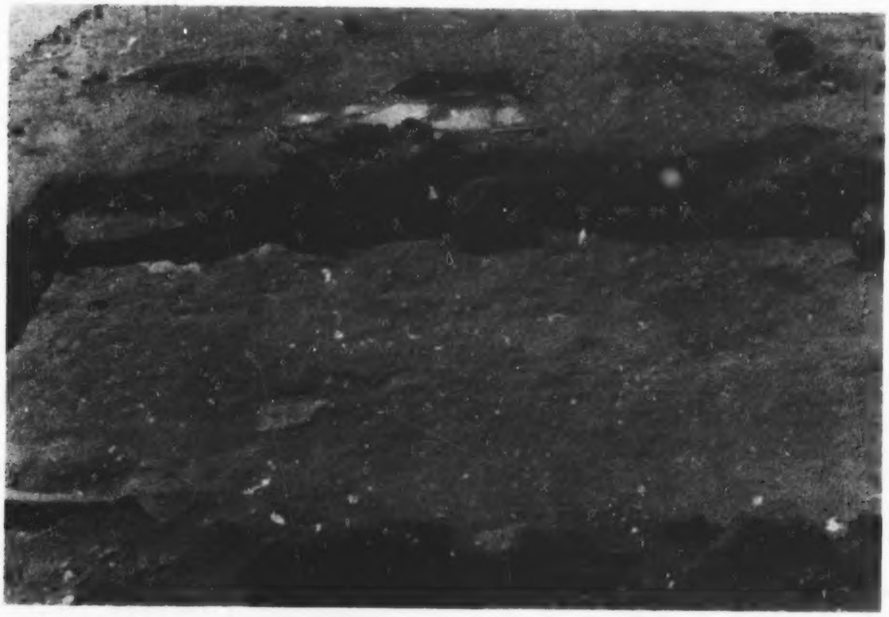


Figure 57. Room BII1 fully excavated. View is west and shows the large stone along the wall, the bin on the exterior and Use Surface 3.

The floor of the room is a rather thin layer of red clay laid over large (but thin), closely fitted sandstone slabs. The stone lies on clean yellow sand and/or small gravel. Interestingly, there is a thin, but persistent and consistent, scatter of gravel between the floor stones and the clay seal. The clay floor surface is smooth, hard, and unstained; it laps just slightly up onto the wall slabs.

Room fill under a thin cap of blowsand (Stratum B1) and Stratum B2 material consisted of 15 to 20 cm. of quite homogeneous, reddish, sandy clay, but with some large, deep pockets (or possible intrusions) of material similar to Stratum B2. Only minor construction stone was in the fill. There was, however, a large quantity of flaking debris in the upper portion of the fill, most of this in a concentration or "cache" (see Chipped Stone, below).

Immediately outside the southwest wall slabs (ca. 5 to 8 cm.), and centered on the wall, is a little bin-like construction of horizontal and vertical slabs (Fig. 57). It is ca. 60 cm. long by 30 cm. wide. On the west is one long slab extending about 12 cm. above the horizontal slabs which are set at the use area surface. Two small, low slabs are just inside the big one, and there is a row of low, small slab and tabular fragments on the east - just across the horizontal stone, which consists of only three rather small, thin pieces forming an incomplete pavement. The short ends are open, or at least no evidence of containing walls was noted.

Room BII2. Adjacent to Room BI1 on the north, this is a very similar although somewhat larger room Fig. 55). It is nearly rectangular in outline (Fig. 49), measuring ca. 2.0 m. by 1.7 m. Sixteen thin slabs form the walls. No gaps are present and the slab ends tend to overlap more here than in Room BI1. There are a few tying and chinking stones along the walls, and as in Room BI1, there is a larger tabular stone set midway along the southwest wall that comes up through the floor to the extant top of the adjacent slab. This does not, however, tie across two slabs as seen in Room BI1.

Structure fill consisted of 15 to 18 cm. of fairly compact, reddish sandy clay, essentially homogeneous throughout. There were, however, numerous thin sandstone slab fragments in the lower portion of the fill, possibly pieces broken from the tops of the wall slabs.

The floor surface is about 8 cm. above that of Room BI1, and while only one full floor is present, it is quite thick. The lowest portion is composed of large, thin, closely fitted slabs (Fig. 55) lying on clean, yellow (Stratum B3) sand. Over this is a partial layer of rather jumbled material, tabular but smaller in outline and generally thicker than the lower stone; probably these are fillers, ties, and patches but are not as obvious as seen in most other instances. Up to 6 cm. of red clay was required to cover and seal the stone. A great deal of small (pea-size) gravel was noted adhering to the clay when it was pulled from the rock, and some remained on the rock - enough to indicate the presence of a more or less full layer ca. 1 to 2 cm. thick.

At a distance of 15 cm. from the southwest wall, but well north of being centered on the wall, is a single horizontal slab lying on the Use Surface 3. This was badly broken-up (Fig. 49) when uncovered but appears to be in place and measures ca. 50 by 20 cm. A few small, low, vertical or slightly sloped tabular pieces partially surround the slab.

Where slabs are parallel, there is a ca. 15 cm. space between the northwest wall of Room BI2 and the southeast wall of Room BI3. This space contains a parallel slab about midway between the two wall slabs that extends along about half the distance where the walls are close; where the slab is absent, as well as on the Room BII2 side of the slab, is a fill of clay rubble and rock, mainly about fist-size. Both the slab and rock/rubble fill are against Room BII3 fill (fig. 58). Apparently, Room BII3 had collapsed and at least partially filled before Room BII2 was built and the intermediate slab and other material are extra backing and support for the northwest wall of Room BII2.

Room BII3. This is essentially a rectangular room, although there are no square corners and no two slabs align exactly (figs. 49,58,59). Length is 1.80 cm. and width ranges from 1.0 to 1.40 cm.. Fill of the unit was defined under about 15 cm. of Stratum B2 material; most wall slabs, however, were not encountered until a depth of about 40 cm. below site surface was reached. With the exception of one or two thin remnants that extended as high as the fill, all the lining slabs were cleanly broken 5 to 10 or 12 cm. above the floor (Figs. 58,59). With this kind of breakage, and with no significant amount of tabular material on the floor or in the fill, it appears that the slabs were pulled after the structure fell into disuse and had at least partially filled.

As opposed to the numerous pieces used in Rooms BII1 and BII2, only eight slabs line the pit walls of Room BII3. These are mainly of substantial lengths (50 to 100 cm.) and are relatively thick (2 to 4 cm). The slabs butt nicely end-to-end except, (1) in the north corner where there is an apparent (and apparently incomplete) patch of light slab and small cobbles and (2) where the two southwest wall slabs are markedly offset at about mid-wall. In the latter instance, a substantial tabular stone (Fig. 59) is set firmly in the floor and tightly against the south most slab, but it is slightly south of the offset gap and extends only 18 cm. above the floor, so it does not wholly fill the gap. There are, however, smaller stones in the gap and floor clay that are probably remnants of a stone and clay filler.

The floor of the room was only minimally explored. Only one full clay-over-stone floor is present and it rests on clean sand and gravel. Where exposed, floor stones are smaller in outline but markedly thicker (3 to 4 cm.) than used in Rooms BII1 and BII2 . Floor clay is rather thin but effectively covers the stone and presents a smooth, even surface. On the long axis, the floor surface is nearly level over the northern half of the room and then slopes up gently over the southern half. The floor, then, is about 7 cm. higher at the southeast wall than at the northwest; at the southeast it is about 12 cm. lower than the floor of Room BII2. There is a gap or break in the floor (Fig. 59) in the north corner, apparently this is simply a matter of two or three floor stones having been pulled.

Over most of the floor surface was a thin (ca. 1/2 cm.) but consistent layer of clean sand. Over this was a layer of bright orange clay, extremely hard when dry. This ranged from only 2 or 3 to 15+ cm. thick, running markedly thicker at the walls and thinning toward room center. Over the clay, and comprising the bulk of the definable fill, was a layer of rather "trashy"

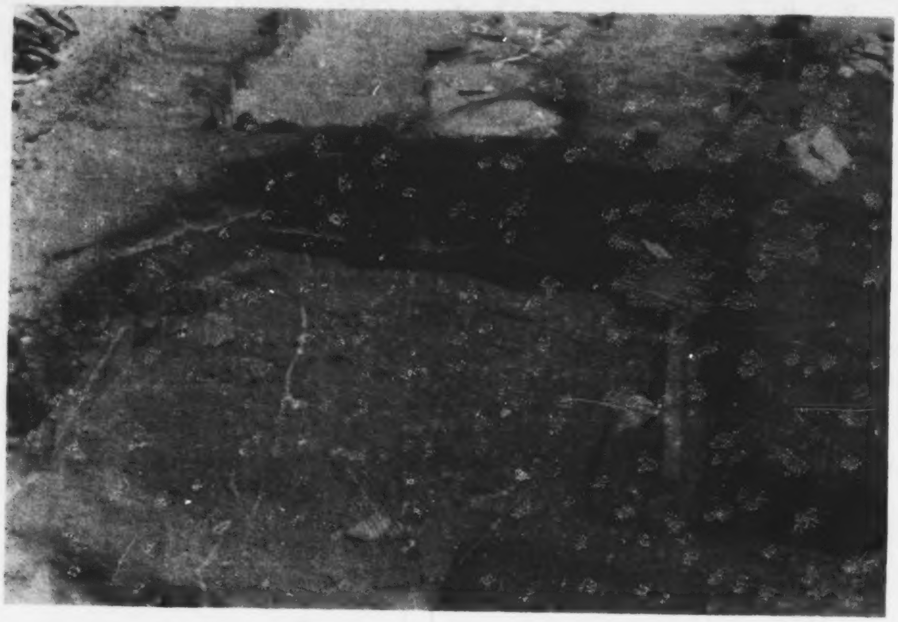


Figure 58. Room BII3 fully cleared. Details wall between the room and Room BII2.

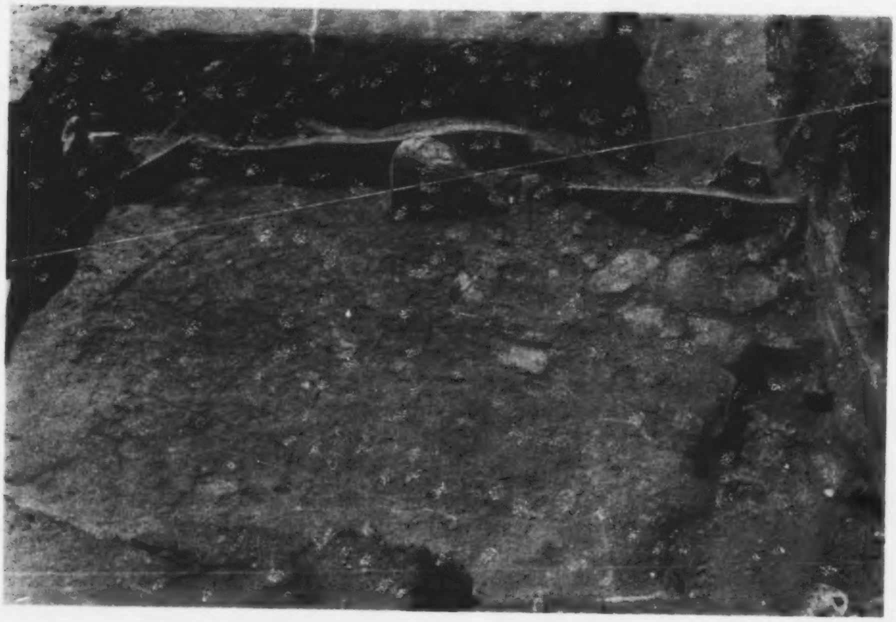


Figure 59. View west of Room BII3. Shows the large stone along the wall and the floor break at bottom right.

sand, still with an appreciable clay content but also showing a lot of gravel and appreciable cultural material. The latter is unusual for the storage rooms on the site and tends to confirm the impression that Room BII3 had fallen in disuse before Room BII2 was build.

Storage Cists

Of the six separate storage units described here, five are seen as early, fairly closely contemporaneous, and aligned in a gentle arc (Fig. 49). The sixth (Cist B1), while it could be viewed as continuing the arc, is clearly later in time and is a rather minor construction as compared to the other five.

While no doubt the earliest features in Area B, and quite probably the earliest features on site, it is not altogether evident whether these units should be assigned to a Pueblo I or a Basketmaker III occupation period. As discussed in more detail in a previous section (see Cultural Affiliation and Dating, above), architectural and other elements from both periods are seen in the cists, but on overall grounds they are tentatively assigned to a Pueblo I occupation.

Cist B1. This is a slab-lined storage cist (Fig. 49) set about equidistant between the northwest end of Room BII3 and Cist B2. Four edge-set pit lining slabs are in place and the impression of a fifth can be seen, giving the cist a slightly irregular pentagonal outline. Slabs range in length from 0.55 to 0.70 m., slope out slightly, and extend up to 27 cm. above the clay floor surface; average interior dimension is about 1.0 m.

The floor is a very thin (1.0 cm. or less) layer of clay over tabular sandstone. The wall slabs extend slightly below the floor slabs. Directly over the floor clay was a constant and consistent 10-cm.-thick layer of clean, reddish sand. Over the sand was mottled clay extending about to the tops of the slabs, save for an area adjacent to the north most slab where overlying Stratum B2 material intruded to the level of the sand.

The cist originates within Stratum B2, and is thus apparently contemporaneous with Room Block BII, although there is no direct tie to the little block of rooms. It is thus stratigraphically later and also structurally markedly less massive than the balance of the Area B cists.

Cist B2. This unit (Fig. 49) was found to be rather badly damaged when excavated. Either one long or two shorter (more probably) lining slabs are wholly missing on the east and only a deep butt represents one west slab; the balance of the slabs show breaks from the tops. Slabs range in length from 0.40 to 0.70 cm. and in thickness from 4.0 to 5.0 cm.; maximum extant height above floor is 60 cm. Slabs abut tightly with little noticeable overlap. Interior joint angles are sufficiently large, and there are enough slabs involved, that the impression of shape is round with a 1.50 meter diameter.

No evidence was noted of exterior masonry, although as abused as the feature was when found, it is doubtful any would have been in place. While not extensively explored, the floor is a thin layer of clay over fitted, tabular stone. Only one floor is present and wall slabs extend slightly below it.

The lower ca. 1/2 of the fill (30+ cm.) was almost wholly clay, although consisting of lumps in a clayey sand matrix rather than as a clay mass. The upper portion of the fill was sandy, extensively rodent disturbed and contained large quantities of rock rubble and pieces of dressed slab.

The cist was defined under about 15 cm. of Stratum B2 material. It apparently originates within Stratum A2a, although that unit was not well-defined in the vicinity of the cist.

Cist B3. This feature is (Figs. 49,60) composed of 11 large, well-fitted slabs lining a relatively deep pit. Shape is essentially round with an interior diameter ranging from 1.80 to 1.90 m. at the top and 1.60 to 1.70 at the floor. While all of the slabs are still in place at the floor level, only two are complete and full height, the balance have been snapped at various angles and depths. A one-for-one accounting was not made, but it appeared that most of the displaced slab pieces were still in the fill. Slabs range from 50 to 70 cm. in length and are mainly only 4.0 to 5.0 cm. in thickness; full-height slabs on the south are 94 to 100 cm. above the floor surface.

Slabs are snugly butted rather than overlapped. Set in the floor and covering each juncture is a narrow tabular stone, somewhat thicker than the slabs, extending 10 to 25 cm. above floor level. For the two intact slabs plus one that is full height along one edge, tops are back only 8, 10, and 17 cm. from vertical. Interestingly, the two intact slabs are in the one area where there are no adjacent constructions (Fig. 49).

The floor was only probed to the extent needed to determine construction. A single floor is present and it is composed of a layer of clay of variable thickness over tabular sandstone. Wall slabs extend slightly below the floor; where checked, stones at the wall slab junctures are set in the floor clay but rest on the floor stone. Material beneath the stone is clean (Stratum B3) sand. The floor is nearly level although the clay laps up slightly on the wall slabs around the perimeter.

In marked contrast to the balance of the big Area B cists that had only masses of rock and clay in the fill, this cist show some good differentiation and something of a fill sequence (Figs. 61,62). The fill did tend to be rather "spotty" and variable from area to area, no doubt due to some of the large stone involved (Fig. 60). Further, the fill was distinctly basin-shaped in cross-section due to the accumulation of rock around the perimeter.

Somewhat generalized, the fill (Figs. 61,62) of Cist B3 appeared as three units. 1. An upper layer of apparent Stratum B2 or Stratum B2 like material, variable in thickness, sealing the pit and interior deposits, and extending somewhat into the pit. 2. A layer of mixed, trashy, darkly stained material composed of sand, clay, some rock, appreciable charcoal and relatively abundant artifacts. This was distinct from the overlying material in content although not sharply separable in contact. The material was markedly deeper toward the center of the pit, although nowhere did it reach the floor. 3. A highly variable "layer" of rock, massive clay, and clean and "dirty" sand. This material covered the floor and rode well up on the walls. Rock in the form of broken wall slabs and other tabular debris was markedly concentrated along the walls, although there was appreciable stone throughout the lower fill. There was some stained sand in the lower fill, but it lacked the mixed

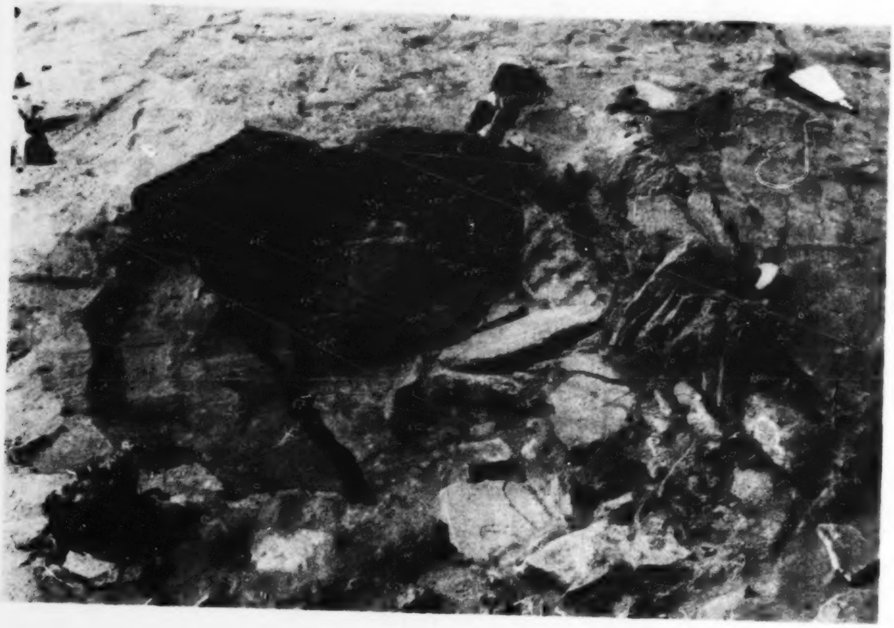
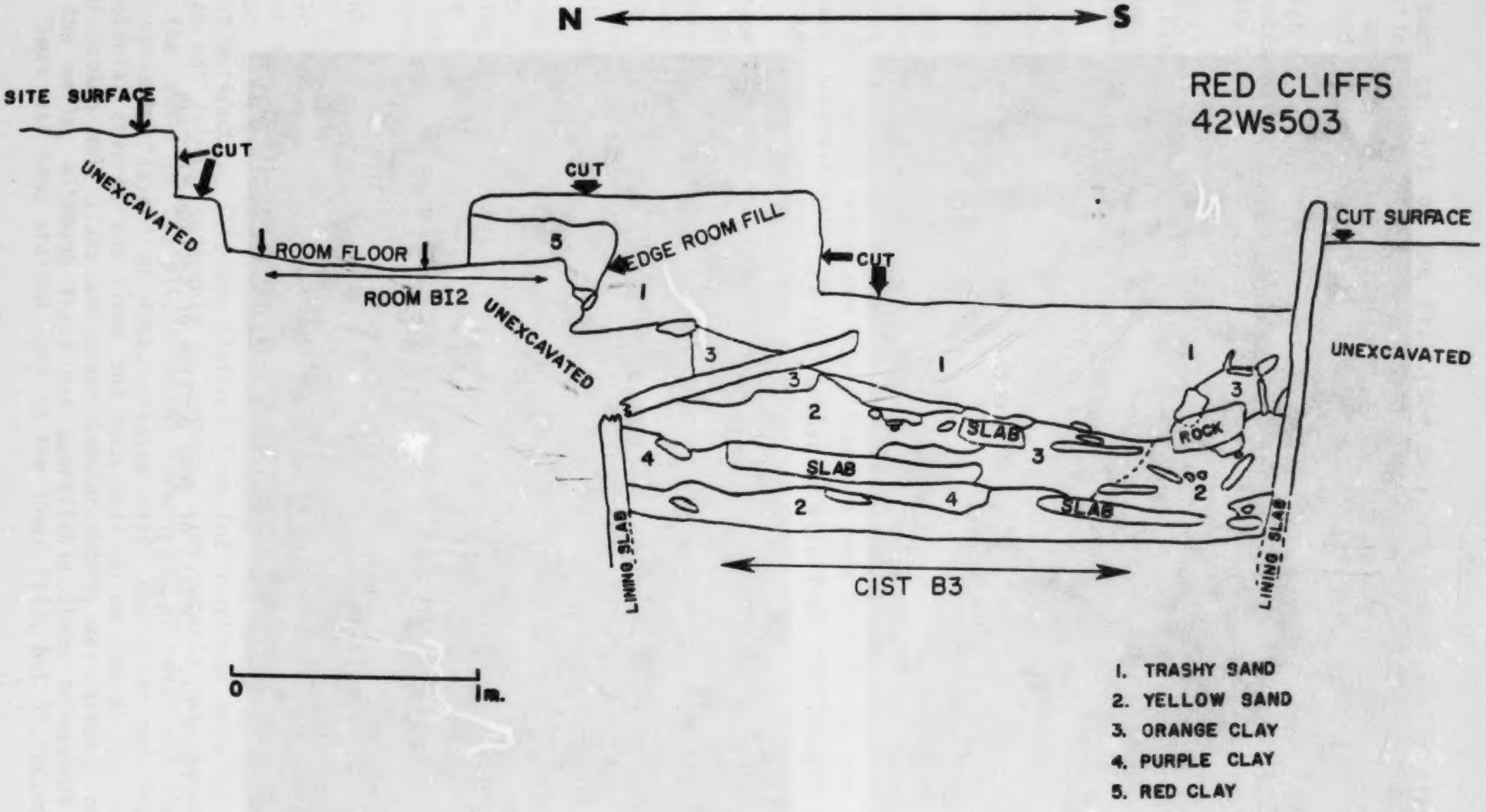


Figure. 60 Partially excavated Cist B3.

Figure 61. Detail of deep portion of section through Cist B3.



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CUT SURFACE
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3
3
1
1
3
2
SLAB
ROCK
3
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SLAB
2
4
SLAB
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LINING SLAB
LINING SLAB
CIST B3
0
Im.
1. TRASHY SAND
2. YELLOW SAND
3. ORANGE CLAY
4. PURPLE CLAY
5. RED CLAY

Figure 62. Detailed cross-section drawing showing the relationship of Cist B3 and Room BI2

nature and artifacts of the material above. Clay was extensive and was basically the matrix of the lower fill. Clean, yellow sand was fairly common in the lower fill, occurring as pockets of some extent and particularly noticeable as a 3 to 6 cm. layer covering many of the larger slab fragments. Both clay and clean sand were in direct contact with the floor.

No stone was found in place around the outside perimeter of the cist to indicate an encircling masonry wall. However, much of the rock in the fill, based on size and shape, could have come from such a wall. In one area on the west, a concentration of tabular blocks (Fig. 60) was found that appeared as a section of directly collapsed wall about eight blocks high. This was high in the fill above a broken slab, but lay at a poor angle to have come in directly from the outside. Still, considering the construction of Cist B4 and evidence from Cists B5 and B6, it is likely Cist B3 had an exterior masonry wall.

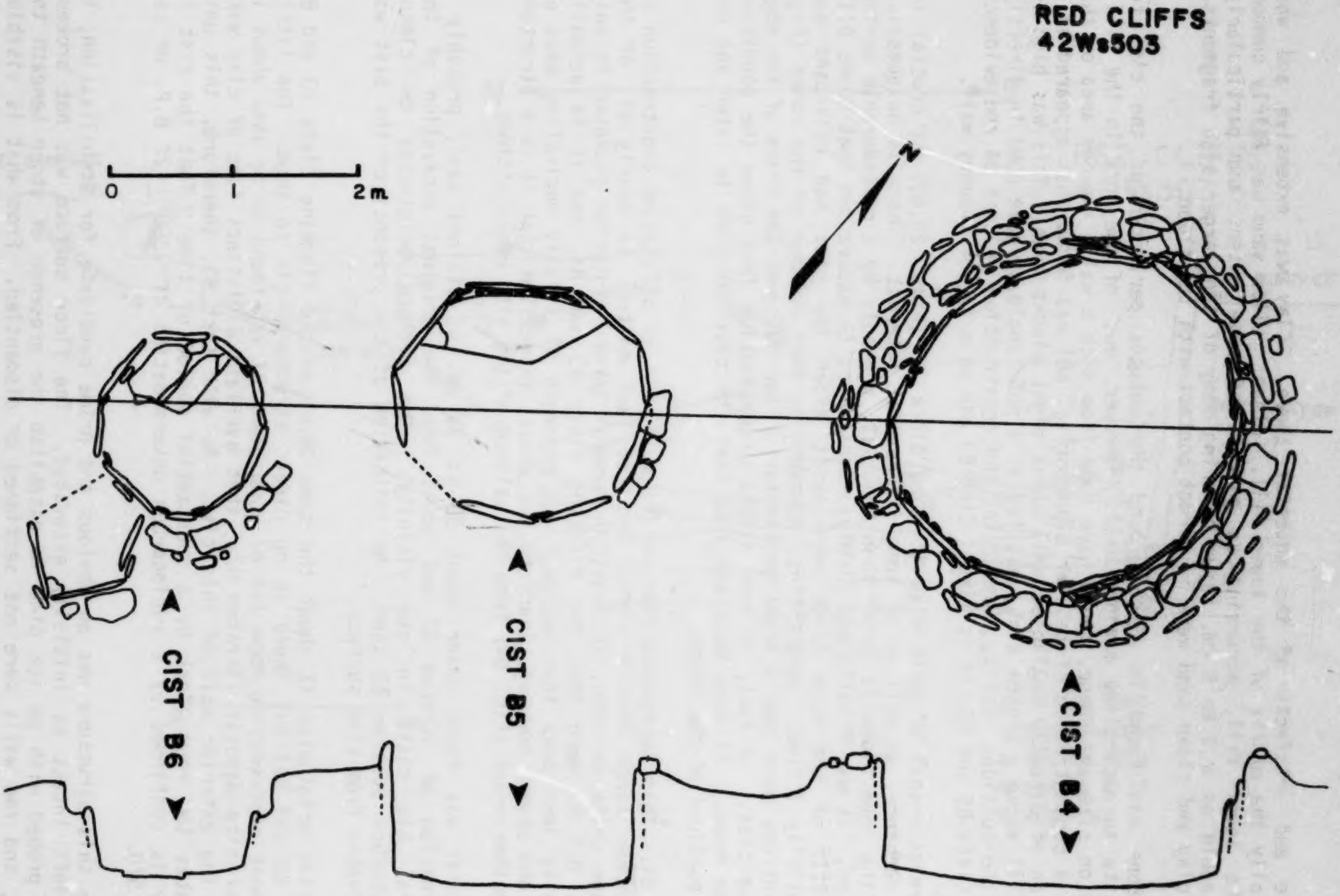
The relationship of this cist to Room Block B1 (Figs. 26,62) is crucial to site sequence, as well as of some inferential interest. There is no question that the room block is later than the cist, probably by a considerable period of time. It was finally and firmly demonstrated in excavation that Rooms BII2 and BII3 of the room block were built after the cist had collapsed and essentially filled. Interesting, however, is that neither of the rooms (Fig. 62) intrude more than a scant centimeter or two out over the trace of the edge of the cist. In fact, at some stages of excavation (and given the condition of the rooms), it very much appeared that the cist had gone in later and cut away portions of the rooms.

Cist B4. This impressive feature (Figs. 63-65) is of similar construction to the other large Area B cists, and for that matter, to nearly all of the storage units on site, at least in general terms. Interior diameter is only about 0.5 m. more than the flanking Cists B3 and B5, and it is actually slightly less deep than either. The presence of a fully encircling mass of clay and stone, however, leads to the visual impression that it is a structure on another order (Fig. 64) from the balance of the site constructions.

The cist was found under about 30 to 35 cm. of stained sand, probably a combination of Stratum B2 and spoil from the original excavation of the several big cists in the vicinity. The feature originates on clean, undisturbed Stratum B3 sand. No indication of the presence of the cist was observable from site surface.

The cist originates at about the same level as the flanking Cists B3 and B5 (and B2 and B6) but there is no direct structural tie to them. The little pavement representing Room AI4 of Room Block BI was found to be atop about 10 cm. of site deposit (Stratum B2a) that overlaid a distinct line of clay wash from the exterior wall of this cist. As with Cist B3, therefore, this unit predates the room block by a substantial period of time. That the cist is early is confirmed by a radiocarbon determination of 1380 ± 70 B.P. or ca. A.D. 570.

Since this structure was an obvious and prime candidate for stabilization, it was left intact as initially excavated. The floor surface was not broken, only probed with an ice pick to establish the presence of stone beneath the clay, and the walls were not sectioned or dismantled. From what is visible,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CIST B4
CIST B5
CIST B6

Figure 63. Detailed plan and cross-section of Cists B4, B5 and B6

the structure seems to show more evidence of patching and/or rebuilding (Fig. 65) than do the other big cists in the area. Also, several of the large lining slabs, as exposed, are nearly square (Fig. 65) as opposed to the distinctly rectangular configuration of slabs of similar widths and thicknesses in the other cists. This, with the depth and signs of patching, suggest a lower, initial floor.

The interior wall is formed of 16 major slabs (Fig. 65). These range from neatly butted to markedly overlapped; in a few cases, a particular slab will actually back one adjacent slab and front the other. At floor surface, there are apparent sealer stones (Fig. 65) over nearly all the slab junctures; mainly those are light slab fragments set only slightly into the clay of the floor.

There is quite a large variation in full slab height, as well as in width and overall massiveness. Only one slab is an obvious butt, the balance show finished (dressed) tops. The butt extends 25 cm. above the floor and is 62 cm. wide. This overlaps adjacent slabs extensively and there are additional slabs set behind that could have been inserted as a patch, or they could represent original construction that is not generally observable elsewhere. There are apparent slab tops visible behind a few other slabs, particularly on the west.

Range in height above the floor for the rest of the slabs is 50 cm. to 87 cm., range in width is 36 cm. to 80 cm., and thickness range is from 2.5 to 5.0 cm. Mainly heights cluster at from over 70 cm., and again from 50 to 60 cm. Only four of the 16 are less than 50 cm. wide. In one area on the northwest, four adjacent slabs are uniformly rather low (55 to 60 cm.) but show six courses of stone immediately behind, beginning just below the tops. Probably the other lower slabs are likewise backed with deeper masonry, but it is not as evident as here.

As exposed in excavation, the encircling wall remnant (Figs. 63,64) shows as a mass of clay and stone. Enough interior is exposed, however, to show that the stone is coursed (Fig. 65), and while there is a lot of variation in size as well as abundant "filler" material present, the wall is based on rather large, regularly shaped, rectangular blocks, perhaps averaging ca. 45 by 20 by 6 cm. In addition to the deep coursing noted above, several areas show three or four distinct courses, with only one extending above the slab tops.

Particularly on the east, but found scattered about the perimeter, are blocks, slightly smaller in outline size as well as thinner in section than the coursed blocks, that are set on edge against the coursed material with their tops angled toward the pit interior. Some of these are set in clay and some are partially clay covered; apparently they represent a purposeful veneer rather than slough off the walls. On the east, evidence of a construction surface in the form of clay lumps and wash and stone detritus was seen just at the base of the leaner slabs, on Stratum B3 sand (see Use or Occupation Surfaces, below).

On the south is a uniformly low area in the coursed stone, just the width of one of the large slabs (80 cm.), which it directly backs. This shows a vertical stone set across the coursing on one side, as well as other evidence of special treatment and preparation, and may mark a sill or threshold for a side entryway.

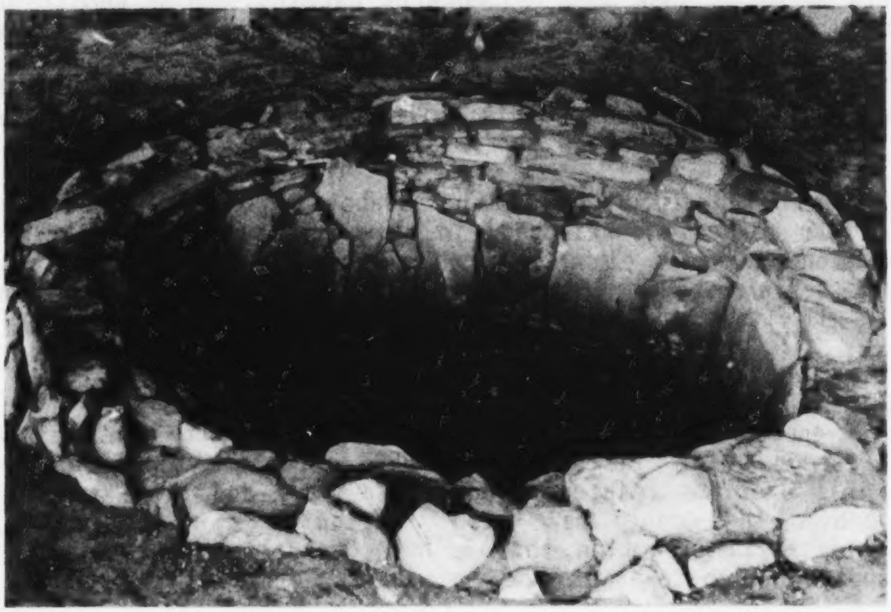

Figure 64. Overview of Cist B4. Stabilized structure.

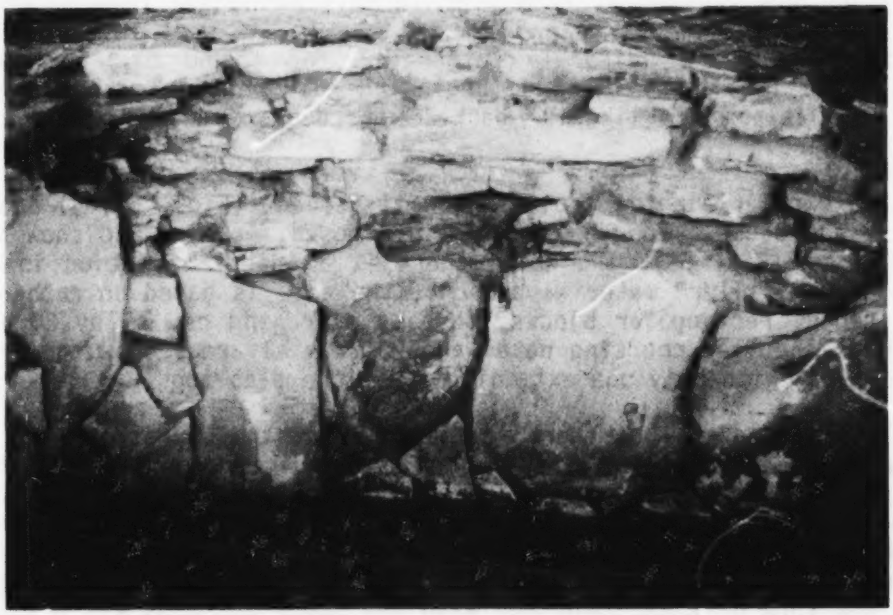

Figure 65. Detail of interior wall section, Cist B4. Stabilized structure.

The clay floor surface (Fig. 64) is smooth, compact, and obviously nicely and evenly laid. Overall, it is just slightly basin-shaped (Fig. 63) as the clay comes well up on the slabs at the margins. There is very little evidence of use-staining of the floor, and virtually no artifacts were recovered from it. The small pocket of charcoal used to date the structure, however, was in direct floor contact.

The cist interior was found to be essentially full-to-the-top with a jumbled mass of clay and stone. Much of the stone was noted to be similar to that in the extant wall courses, but some was appreciably larger. Attempts to section the fill were constantly frustrated by the amount and jumbled nature of the stone, and it was eventually taken as a unit. Very few artifacts were recovered from the fill. Appreciable sections of obvious wall fall were not evident; however, since only minimal stone was found to the exterior, everything must have either fallen into the pit or was taken elsewhere.

Full exterior diameter of the unit ranges only from 3.70 to 3.80 m.; interior diameter is a little more variable at from 2.40 to 2.70 m. Highest extant wall section from slab-floor contact to top of coursed material is 1.15 m. Only one slab is set as much as 10 cm. back from the vertical; the balance are from 2 to 5 cm., or too close to measure.

Cist B5. This (Fig. 49) is almost exactly the same size as Cist B3 on the opposite flank of the big B4 Cist. Floor diameter is 1.60 to 1.70 m. and inside top diameter is 1.80 to 1.90 m. There are two less slabs here (nine) than in Cist B3, however. No single slab in this cist is larger than several in Cist B3; rather, the slabs here are more uniform in length and average slightly larger than the Cist B3 representatives.

One slab is actually missing, but its location is well marked by a floor slot plus an impression in the pit wall. Of the remaining eight, five are full height (dressed top) and extend 66 cm., 80 cm., 90 cm., 105 cm., and 107 cm. above the floor. Where evidence is present, variability in height was compensated by laying deeper courses of exterior masonry. Slabs range from 4.0 to 5.0 cm. in thickness and are set back only about 10 cm. from vertical. Some junctures show tie/chinking stones at floor level, but not all. Mainly the slabs butt tightly, although there is some overlapping in an instance or two.

The floor is level, or nearly so, and is composed of ca. 4.5 cm. of clay laid on rather large, thin and tabular pieces of sandstone. The larger floor slabs are either closely fitted to the wall or tied to the wall with extensive chinking. Some overlapping, as well as chinking, is present on the interior. Only one floor is present and it is set on clean sand and gravel.

One section of exterior masonry is present on the east (Fig. 63). This is composed of squarish, tabular stones of similar size. In part, the extant section is behind one of the lower slabs and is extended in thickness to seal behind the slab.

Fill of the cist was a generally undifferentiated mass of sand, extensive clay, and copious rock. The rock present consisted of apparent slab fragments as well as the thicker tabular material (and other stone) probably derivative from exterior walls. No fill sequence was apparent and very few artifacts came from the fill. Only a minor quantity of stone was found to the outside.

On the north, a small firepit was found built into the upper fill (Fig. 63). Two of the cists wall slabs were apparently snapped and the upper portions pulled and discarded to accommodate the feature, which seemingly could have more easily been built elsewhere. The firepit is intrusive and the cist was essentially filled before the firepit was built (see Outdoor Firepits,below).

Cist B6. This feature consists of two parts, a cist of moderate size (in the context of other Area B cists) with a small cist attached on the south(Figs. 63,66). The two outlines share a common slab and were either built originally as a unit, or the smaller was added later as an intended integral part. There is no intrusion or superposition evident.

With the shared slab, the smaller cist is pentagonal in outline with slabs ranging in length from 0.40 to 0.70 cm. There is no constructed floor or definable floor surface present, but it is probable that a slab and clay floor has been pulled. Slabs extend to 40 cm. above slightly stained gravel found immediately under nearly solid but loose and flaky clayey fill. This "surface" is ca.35 cm. above the clay floor surface in the larger unit. The common slab is a low butt only 13 cm. above the floor of the larger cist; there has been a lot of breakage with the soft, friable slabs in the larger portion, so there is no way to tell whether this is "as-built" or not.

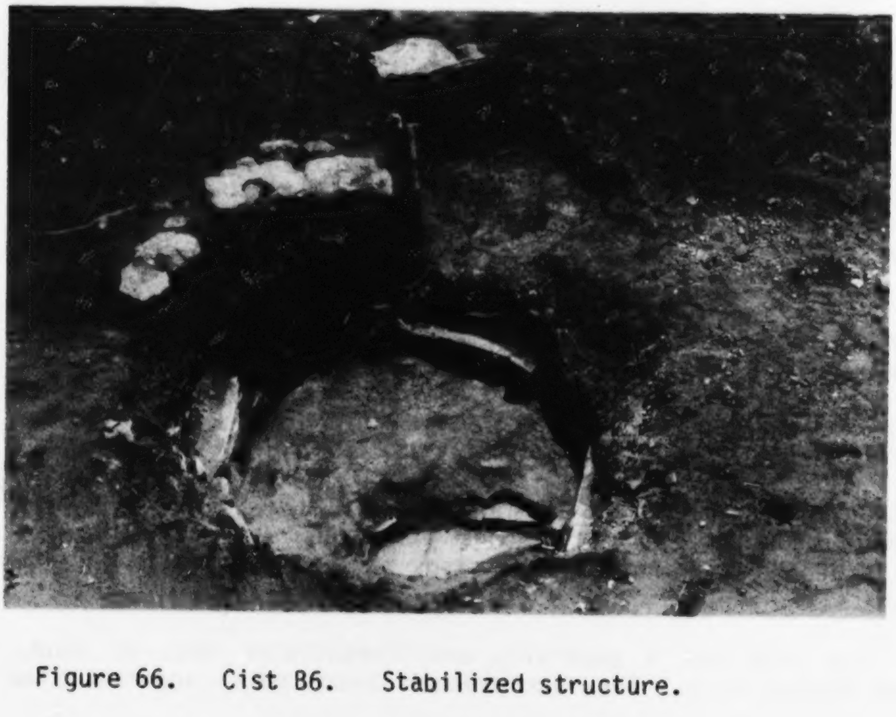

Figure 66. Cist B6. Stabilized structure.

Again counting the common slab, there are 12 in the main cist. Several of these are rather narrow, and the range from 25 to 60 cm. is rather more than seen in most of the other Area B cists. Full slab height, in the few instances where it is still observable, ranges from 60 to 70 cm.; thickness range is from 3.5 to 4.5 cm. Slabs are well-butted and set near the vertical; low, tabular stones are set in the floor clay to span junctures, at least in several instances.

Overall, the larger unit appears to have a somewhat irregular shape, although interior diameter at the floor only varies from 1.30 to 1.35 cm.

The floor is composed of a rather thick layer of clay (7.0 to 11.0 cm.) over tabular sandstone. The clay surface is level over the interior but comes up rather sharply onto the walls in some areas. In part, the clay along the walls covers stone chinking along the margins of the slab portion of the floor, which is composed of large pieces of thin sandstone, generally well-fitted to the walls, but carefully chinked where necessary. In one area, floor stones were found to be two thick. This was a case of extensive overlap of thin stones and not a second floor. Floor stones rest on clean sand (Stratum B3) and some gravel.

Somewhat over 1/2 of the perimeter of the larger unit is encircled by rather evenly sized, rectangular, tabular blocks (Fig. 63) averaging about 40 by 20 by 8 cm. The blocks are set just behind and slightly below the slab tops (Fig. 66). While nowhere more than one stone deep, this is apparently the base course for an exterior stone wall. One large and a couple of small stones are around the smaller unit, so it is probable that it was walled, also.

Fill of the larger unit was sand, extensive clay, and much stone. No fill sequence or obvious differentiation was noted. Only a very few artifacts came from the fill.

Use or Occupation Surfaces

Three fairly distinct "surfaces" were identified in Area B that generally account for the three major construction/occupational events defined in the area (Fig. 26). These are not surfaces in the sense that they are separately laid, packed, peelable, or otherwise finite or fully or easily definable. Rather, they are generalized manifestations based on apparent structural associations, content, color, etc. The earlier two surfaces defined were specifically identified over only very restricted areas, but provided excellent relationship information.

Surface 1 was defined over a limited area adjacent to the east side of Cist B4. This area showed a marked line of clay wash from the masonry surrounding the cist plus some lumps of clay and a few stone fragments, all of which lay on clean, Stratum B3 sand at about 35 cm. under site surface.

Surface 2 was also defined over a rather limited area, this directly to the front (east) of Room BI4. The surface was identified as a thin layer or slight concentration of patchy clay, clay wash, and other minor debris laying directly on ca. 8 to 10 cm. of lightly stained sand (Stratum B2a) which, in turn, overlies Surface 1.

Surface 3 was found to be more on the order of an occupation area to the front (southwest) of Room Block BII (Figs. 66,67). At from 8 to 12 cm. below site surface, the general fill over the area became somewhat lighter and showed a minor but general concentration of artifacts and some apparent construction debris. This was rather effectively followed over a ca. 7 by 4 m. area directly adjacent to the rooms; although, it was seen to have a few centimeters of thickness, more or less a thin zone of mix between overlying Stratum B2 material and clean sand below. The little constructions adjacent to Rooms BII1 and BII2 were clearly associated, but no additional features were noted. The surface could not be effectively traced north beyond the room block, but would project well above Surface 2 and Room Block BII.

Stone Concentration

As the heading implies, this is an area of concentrated rock, essentially one deep, encountered during the Area B excavations. It is discrete and fairly well-placed stratigraphically, but there is no evidence as to what it represents or how it relates to the occupation of the area. The rock covered an area about 3 m. by 2 m. over portions of Rooms BI1 and BI2 as well as to the south of the rooms. It was wholly contained within Stratum B2. It lay on the fill of the rooms and it was found just a few centimeters under site surface. Composition is carbonate-encrusted rocks such as might come out of the gravel bar, plus a few slab fragments. Mainly the rocks are about head-size and smaller.

Outdoor Firepits

Firepit B1. This is a smallish, rather oblong or egg-shaped firepit (Fig. 67), edge and bottom-lined with small slabs and a few crusted, blocky stones out of the local gravels. Outline size is 61 cm. by 50 cm.; the pit is basin-shaped and totals about 20 cm. below the tops of the rim lining stones. Several stones appear to be out-of-place, but the overall impression lent by the unit is one of tight, careful construction. The small slabs that line the bottom show two partial layers but there is no real evidence of a rebuild. Stones/slabs lining the edges are set about 10 degrees back from vertical and generally rest on the bottom liners.

The upper 10 to 12 cm. of fill was simply Stratum B2 material. Below, and resting on the bottom liners, was 8 to 10 cm. of ashy sand with some pockets of fine charcoal. Bottom liners, in particular, are noticeably burned and darkly stained.

The firepit was found in among the rocks of the "Stone Concentration" (See below) and is only about 25 cm. from the edge of Room BI1. However, a vague surface immediately around the firepit overlies clay spill from the collapse of both Rooms BI1 and BI2, so the feature is definitely subsequent to the occupation and abandonment of Room Block BI. Probably the stone from the concentration covered the firepit, but it was difficult to tell for certain.

Firepit B2. This nicely constructed, fully stone-lined firepit (Fig. 63) was built over the north portion of Cist B5 after the cist had fallen into disuse and the pit totally filled. About 1/2 of the firepit is cut into the fill of

Figure 67. Partially cleared Outdoor Firepit B1. Note Room B11 on the right and Cist B3 on the left.

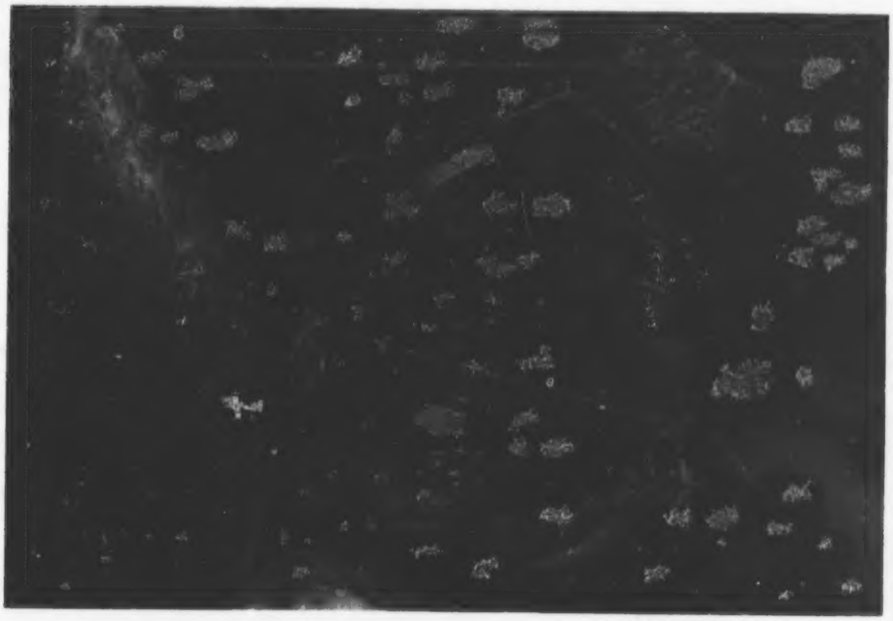

Figure 68. Fully cleared Outdoor Firepit B3 build against Cist B3 lining slabs.

the cist, directly over the juncture of two of the larger lining slabs for the cist pit. When the cist was excavated, these slabs were found to be only ca. 30 cm. high butts and the balance portions could have been pulled to accommodate the firepit, or they could have been pulled previously - they were not found within the cist.

While a little abused, the firepit reflects careful and tight construction. The bottom is mainly composed of one thin slab that has segmented into several sections. Pit walls are lined with several rather narrow slabs, more or less vertically set and extending slightly below the bottom stones. On the east, two or three of the slabs are set against stones of the exterior masonry wall of Cist B5.

The outline of the firepit is slightly oblong, measuring from 0.8 to 1.0 m. The nearly flat bottom is 36 cm. below the higher of the intact liner tops. Fill was a few centimeters of Stratum B2 material over very darkly stained, ashy sand, not noticeably differentiated over 20 to 25 cm. The feature appeared to originate near the bottom of Stratum B2 but is quite far removed and isolated from other late Area B constructions.

Firepit B3. This is a small, stone-and-clay lined pit (Fig. 68) set directly adjacent to the south side of Cist B3 (Fig. 49). The feature is slightly irregular in outline, but something on the order of round and about 40 to 45 cm. across.

The pit is basin-shaped and actually only about 8 to 10 cm. deep. However, while most (two-thirds) of the sloped exterior edge is lined with small slab fragments set on slope, the east portion shows some substantial pieces of slab set only about 30° back from vertical and extending up to 15 cm. above the pit edge. There are just a couple of small horizontal slabs on the basin interior; these seem to be set in, rather than under, a fairly thick layer of lining clay that runs up on the edge liners, but does not cover them.

While basically similar in construction to other outdoor firepits on site, there is actually very little evidence in the fill to indicate such use. However, there is a ca. 20 cm. in diameter area of darkly stained sand and ash immediately adjacent on the south that may be material cleaned from the pit.

The feature has the same approximate level of origin as Cist B3 (Stratum B3 or low in Stratum B2a). Further, the firepit is tied directly to the cist (Fig. 68) with either lining stone or clay in direct contact with cist slabs, this just slightly below the top of the one full-height slab involved. However, to view the firepit as a virtual integral part of the cist, in use while the cist was in use, presents a problem or two. Such a situation would be quite unusual in the site sample of various storage unit constructions; further, such a view is in some conflict with the interpretation that the big Area B cists probably all had exterior masonry.

Firepit B4. This feature is a shallow, basin-shaped pit located (Fig. 49) directly adjacent on the east to the general trace of the south wall of Room BI4 (Fig. 54). The pit is roughly and only partially outlined by small slab fragments and cobbles, but is not "lined" per se.

Diameter is ca. 60 cm.; depth is up to 15 cm. Fill was Stratum B2 material, slightly ashy and showing a few charcoal flecks. Association is clearly with the Room and Use Surface 2.

Midden B1

This area was not excavated, but it should be noted as it is probably closely related to the Area B occupation. The area is on the fairly sharp little slope immediately east of Room Block BII, which, itself, is set just at the edge of the slope. The area is hardly noticeable unless wet, in which case it becomes quite dark. Close inspection reveals a light scatter of sherds, stone flakes, etc.

ARTIFACTS

The majority of the Red Cliffs artifacts are grouped and described under the traditional headings of chipped stone, ground stone, and ceramics. The remainder, a very small number, are treated under the heading of miscellaneous remains, which also includes the tiny sample of bone and preserved botanical specimens recovered from the site.

The artifact total from the site is not large at all - excepting flaking waste and debris, which is detailed in the appropriate following section. Particularly noticeable is the paucity of ground stone, and especially metates. Also notable is a general lack of ornaments, apparent non-utilitarian items, and exotics. The latter category is poorly represented in both finished artifacts and raw materials.

Chipped Stone

Materials suitable for the production of flaked stone tools were found in some abundance in the site features and deposits. These were in the form of waste and residue from flaking activities, expended or partially expended cores, broken and shattered pieces apparently found unsuitable for use, and unused cobbles and nodules.

As noted previously, source materials suitable for stone tool production are locally available in abundance (Fig. 14). To some extent, this ready availability seems to be reflected both in the quantity and the type of material recovered from the site. On the one hand, and simply stated, there is a lot of outright trash. That is, material so full of fracture planes or impurities that it cannot be effectively worked. Additionally, there is quite a collection of apparently unused nodules and cobbles that do not always appear to be of inferior quality. These bits of evidence are taken to indicate that lithic source material procurement was a rather casual affair with the site peoples, characterized by little field checking of materials and perhaps a tendency to bring a piece or two in when returning from various forays.

Despite the abundance of raw materials and the amount of debris in the site deposits, there are actually few well-formed or extensively worked tools in the collection. These are classified and described using categories in general usage, such as projectile points, bifaces, drills, etc. Some attention is given to microwear (see "Utilized Flakes", below), but a complete study is not attempted. Only limited, overview work has been attempted with the large collection of debris. It would be particularly interesting, however, to see a good lithics person work with the micrite as it seems to have some interesting qualities. On the one hand, it is dense and relatively tough and apparently works, at least for initial flaking purposes, rather easily. On the other hand, edges and margins are neither sharp nor durable, and despite a great number of flakes in the present collection, there are few indications of actual use. It seems unlikely that flaking practice was the primary use of this material and it should be possible to extract some meaningful data from a more thorough going treatment than attempted here.

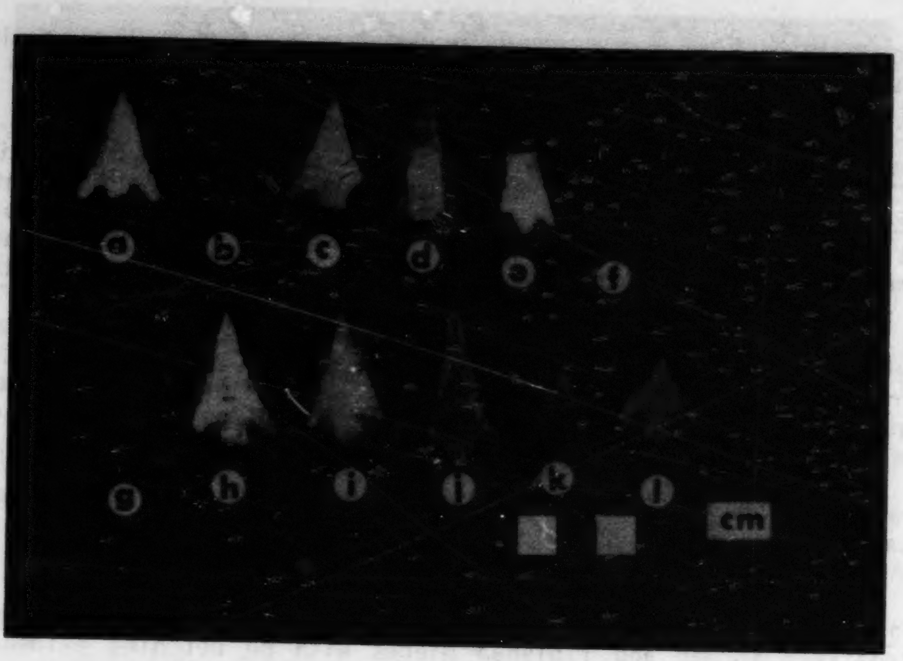

Figure 69. Projectile points. a-f, small basal-notched; g-l, small corner-notched.

Projectile Points

Thirty-three specimens are included and described here, although three large examples could as well be knives notched for hafting, and one artifact could have another function entirely. The 23 small, notched artifacts in the collection have been separated into corner-notched and basal-notched forms. While good examples of both types are present, the two groups do not segregate cleanly and some overlap or continuum is seen.

Small Basal-notched Forms. The 11 basally-notched specimens (Fig. 69a-f) show considerable variation in some details, and vary somewhat in length-to- width relationships, but all are technically quite well executed. Cross- sections are smooth and thinly lenticular, symmetry is generally good, and there is no curvature evident over the long axes.

Margins are straight to slightly concave, although on four examples (Fig. 69d), tangs flare sharply to lend an impression of a great deal more concavity than is characteristic of the blade margin per se. Margins on two examples are slightly serrated (Fig. 69a). Bases appear to be mainly small and slightly constricted, but several of the specimens lack just the base, via breakage.

A few of these examples would easily become lost if mixed with Parowan Basal-notched collections from the Fremont sites to the north. They are not, however, the type specimens (compare with Marwitt 1970, Fig. 51; Homer and Weder 1980, Fig. 9).

Length ranges from 2.44 to 3.40 cm.; basal widths from 1.23 to 2.10 cm.; maximum thickness varies from 0.32 to 0.48 cm.; and weights range from 0.7 to 1.2 g. All are of chert or chalcedony.

Small Corner-notched Forms. These 12 examples (Fig. 69g-l) are similar in size and general form to the preceding group but show somewhat more variability in certain respects. Five specimens show plano-convex cross-sections by virtue of an unmodified flake surface on one blade face; all five are noticeably curved over long axes and two are also somewhat "twisted".

Stems are pronounced and are either parallel-sided and square, or smoothly rounded. Margins on 10 of the group are straight to just slightly concave; of these, three show distinct serrations (Fig. 69h,j,k). Margins on the other two are quite irregular, but both are quite short in relation to length and are probably reworked (Fig. 69l).

Lengths range from 1.40 to 3.78 cm.; width across the tangs ranges from 1.27 to 2.05 cm.; thicknesses range from 0.18 to 0.43cm.; and weights from 0.45 to 1.95 g. All are of chert or chalcedony.

Small Unnotched Forms. Five examples, only one of which is complete, are well made, extensively formed and finished pieces with no notching evident (Fig. 70f-h). All appear to be relatively long in relation to width. Margins are straight to concave; four bases are rounded (convex); one shows a slightly salient area in the middle.

The complete example (Fig. 70f) is 3.84 cm. long, 2.09 cm. across the base, and up to 0.40 cm. in cross-section thickness; weight is 1.9 g. The other examples are of similar size or slightly smaller. All are of chert or chalcedony.

Large Points. Three specimens (Fig. 70a-c) bear little detailed resemblance one to another, but all are quite well made and all are well outside the size/weight range generally taken to mark arrow points. They could, therefore, be either dart points or knives meant for hafting. Generally, these seem to bear more resemblance to Basketmaker forms from the Southwest than to the named Archaic types from the Great Basin and Colorado Plateau.

Two show very low side-notches (Fig. 70a,b), barely discernible on one example. Length of the complete specimen is 5.43 cm., width is 2.2 cm., thickness of the smoothly lenticular cross-section is 0.60 cm.; weight is 6.1 g. The other example projects as slightly larger and heavier. Both are of chert or chalcedony.

The third specimen (Fig. 70c) is slightly asymmetrically corner-notched; the base is markedly convex and the margins are slightly convex. Projected length is ca. 4.7 cm., base width is 2.0 cm., the well thinned, lenticular cross-section is 0.48 cm. thick, weight is 3.9 g. Material is chert.

Gypsum Point. This single specimen (Fig. 70j) is the only complete obsidian artifact from the site and is a good example of the named Archaic type (compare Fowler, Madsen, and Hattori 1973, Fig.9). Length is 2.97 cm., width is 2.34 cm., thickness is 0.50 cm., weight is 2.7 g.

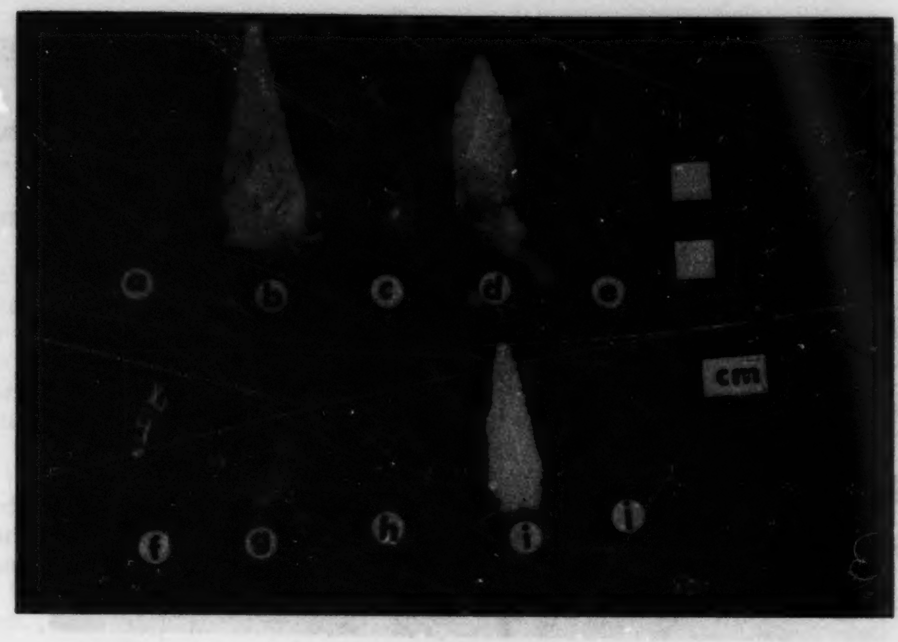

Figure 70. Chipped stone artifacts. a,b, large side-notched points; c, large corner-notched point; d,e, drills; f-h, unnotched points; i, point or scraper; j, Gypsum point.

Point or Scraper. This specimen (Fig. 70i) is shaped like a long, narrow, tapered projectile point and is only slightly larger and heavier than some of the small specimens noted above. It also shows what could be taken for rude notches and the cross-section is thin and regular. From one face, however, both margins are steeply retouched along their entire lengths and both show marked wear under magnification. Material is chalcedony. Length is 4.14 cm., width near the base is 1.9 cm.; thickness is 0.43 cm., weight is 2.8 g.

Unidentifiable Fragments. Ten specimens are apparently tip sections from artifacts generally similar to the points described above. Five indicate smaller forms and five the larger forms. All are chert or chalcedony.

Finished Bifaces.

This grouping of 22 specimens (Fig. 71a,b), most of which are fragmentary, is taken to represent formed, thinned, and retouched cutting tools, probably meant for hafting. Forms indicated are triangular and elongate triangular. Cross-sections are relatively thin and lenticular; margins are straight to slightly concave or slightly convex. Bases are straight to slightly convex. Margins and bases generally show extensive retouch and are quite sharp.

Two complete examples (Fig. 71a,b) measure 3.50 cm. and 3.32 cm. long, 2.98 cm. and 2.02 cm. wide at the base, and 0.60 cm. and 0.68 cm. in thickness, respectively. Weights are 5.9 g. and 4.3 g. Fragments indicate similar sized to somewhat larger artifacts. Materials are chert or chalcedony, 21; obsidian, 1.

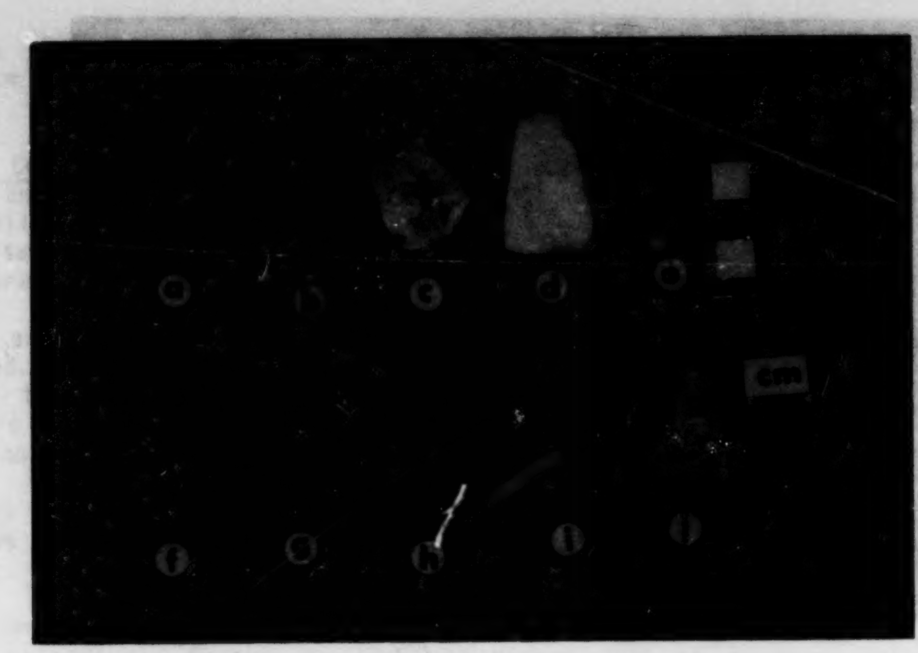

Figure 71. Chipped stone artifacts. a,b, finished bifaces; c, Class V scraper; d,e, unique artifacts; f-j, small preforms.

Preforms

Forty-six examples (Fig. 71f-j) appear to represent production-stage artifacts, in that they reflect attention to form and are bifacially worked, but are still quite thick in cross-section and show large flake scars rather than fine retouch. Several also show large step fractures on faces that may indicate the artifact could not be further thinned and had to be abandoned.

Sixteen apparent fragments represent relatively large artifacts that project to be oval to ovate in outline, ca. 5 to 7 cm. long and 2.5 to 3.5 cm. wide. Thickness ranges from 1.2 to 2.2 cm. All pieces are chert or chalcedony.

A second group of 30 examples (Fig. 71a-j) shows artifacts uniformly smaller than projected for the first group and several unbroken specimens are present. Some examples are rather irregular in outline, four (Fig. 71f) are oval to ovate, nine (Fig. 71i,j) are more or less triangular but with rounded bases, and 12 (Fig. 71g,h) are distinctly elongate triangular or lanceolate. An elongate specimen of average size measures 4.47 cm. long, 2.30 cm. wide, up to 0.85 cm. thick and weighs 8.15 g.; a triangular example is 3.16 cm. long, 2.55 cm. wide, 0.90 cm. thick and weighs 5.6 g.; an oval piece is 4.0 cm. long, 3.0 cm. wide, 1.4 cm. thick and weighs 16.2 g. All examples are chert or chalcedony.

Choppers

This is a rather heterogeneous lot (Fig. 72) of mainly fairly heavy tools, 14 in number, that show as distinguishing characteristics a substantial length of edge or margin that is at least somewhat crushed and battered, but that is also relatively thin and sharp. Indicated is use for heavy-force cutting against materials softer than the artifact stone.

These are not formal tools in the sense that they show any particular degree of shaping. Minor bifacial edge-work is evident on one or two; more common is an irregular series of short, broad, steeply angled flakes forming a rough, sinuous edge. Six specimens (two obviously fragmentary) are made on heavy primary flakes (Fig. 72b) and are relatively thin in relation to overall size; the balance are either reused cores or nodules and are relatively thick (Fig. 72a).

One of the flake examples (Fig. 72b) of somewhat regular shape is ca. 10.5 cm. in outline diameter and from 2.8 to 4.0 cm. in thickness - excluding the thinned working edge; weight is 540 g. A thicker specimen of about average size is roughly triangular in outline with a tabular cross-section; length is 9.8 cm., maximum width is 8.0 cm., thickness is ca. 5.0 cm., and weight is 685 g.

Materials are quartzite, 9; micrite, 4; and granite, 1.

Hammerstones

Included here are 46 specimens (Figs. 73,74,75e), made of hard, dense stone that are of a size that can be conveniently grasped in one hand. Characteristic are fairly extensive crushed and battered surfaces and/or salients. Indicated is extensive and heavy-force use against hard materials. While use on some of the specimens is rather extensive, only a few even approach the near total use of available surface area seen on apparent functionally comparable artifacts from sites in the adjacent Parowan Fremont area (Marwitt 1970, 82 and Figure 62). Five descriptive classes are here recognized on the basis of form and other attributes.

Class I. Seventeen specimens (Fig. 73a,b) are generally round to oval in outline and thick and oval in cross-section. On average, these run a little smaller and are somewhat more elongate than the Class II grouping that contains a like number of artifacts. These segregate from the Class II specimens, however, on the basis of being single-use artifacts. These are cobbles, broken cobbles, and nodules that evidence no use previous to the development of the battered facets characteristic of the group and class. All show use on more than one area and some show rather extensive use; overall, however, they are not as extensively battered as the Class II group.

Size range for the class is not great. An oval example of average size is 10.0 cm. long and from 5.5 to 6.5 cm. in approximate mid-length thickness; weight is 580 g. An average rounded example varies in diameter from 6.0 to 8.0 cm. and weighs 455 g. Materials are quartzite, 15; micrite, 2.

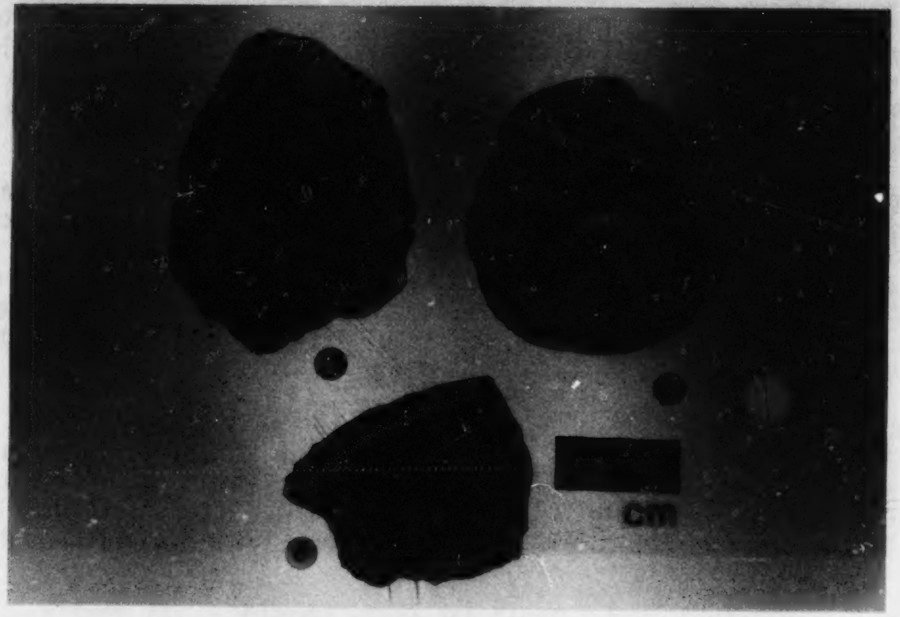

Figure 72. Choppers

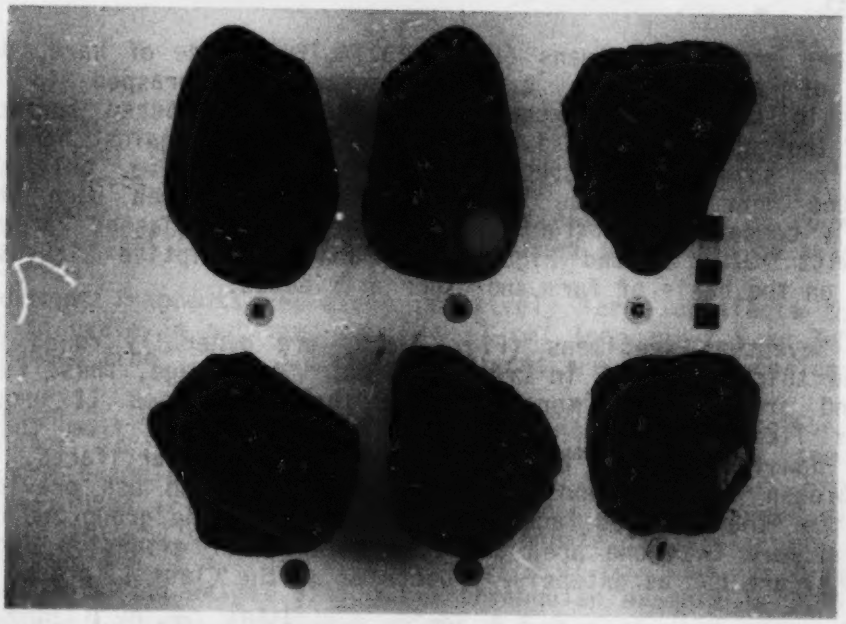

Figure 73. Hammerstones. a,b, Class I; c-f, Class II.

Class II. As noted, these 21 examples (Fig. 73e-f) do not differ greatly in size and shape from the Class I material. They are generally more extensively battered, but the major defining characteristic is that all show evidence of a previous use; in this case, all were either cores or at least pieces of source material from which a few flakes were struck. In two or three instances, flakes may have been removed to form an appropriate battering surface, but mainly this does not appear as characteristic. Despite some angularity caused by old flake scars, basic outline form is round to oval; cross-sections are thick and irregular. The smallest example included ranges in outline diameter from 5.0 to 6.4 cm.; thickness is 4.5 cm.; and weight is 150 g. One of the larger pieces is ca. 10.5 cm. in dia. and ranges to 8.0 cm. thick, weight is 760. An average specimen is ca. 8.5 cm. in dia., 6.0 cm. thick, and weighs 430 g. Materials are quartzite, 10; chert, 7; micrite, 3; granite, 1.

Class III. These five pieces are also reused artifacts, or in three cases, possibly combination tools. They differ from Class II examples in showing ground rather than flaked surfaces, in addition to battering facets. Two quartzite pieces are obviously ends of manos and two fine-grained quartzite examples each show one highly polished surface. A fifth quartzite specimen (Fig. 75e) is somewhat squarish in outline (but with rounded corners) and tabular in cross-section; margins are wholly battered and both faces are ground smooth.

The specimen last described is ca. 7.4 cm. in dia., 4.5 cm. thick, and weighs 370 g.; the other artifacts are less regular in shape but of similar size and mass.

Class IV. Two relatively large pieces of dark, large-grained granite show both extensively battered surfaces plus some smoothing or grinding. Both are probably pieces of larger artifacts. One example is roughly oval, measuring 10 cm. long by 8 cm. wide by 7 cm. thick; weight is 675 g. The other specimen (Fig. 74a) is 11.0 cm. long with a somewhat triangular cross-section 6.5 cm. wide and 8.0 cm. high; weight is 780 g.

Class V. These two artifacts (Fig. 74a, b) are sub-cylindrical pieces of petrified wood. Ends on both examples are more or less flat and battering marks are evident about the entire circumference on both ends of both specimens. They are 9.0 and 10.0 cm. long. The longer example is more nearly round in cross-section, measuring from 5.0 to 5.8 cm.; the other is more oval, ranging from 4.4 to 6.7 cm. The longer pieces weigh 470 g.; the shorter, 420 g.

Pecking Stones

Twenty-one specimens (Fig. 75a-d) are segregated from the hammerstone category and included here, mainly on the somewhat subjective basis of having the appearance of being a lighter-use artifact. All but two are either quartzite pebbles or, more commonly, pieces of pebbles or cobbles. The broken, more angular and irregularly shaped pieces (Fig. 75d) show battered or abraded areas on small salient points or edges, and occasionally along a fairly substantial (2 to 4+ cm.) section of a thin edge or margin. The slightly elongate pebbles A7c show use facets at the ends. One thin and distinctly triangular example A7b shows marked use at all three corners but none along the margins.

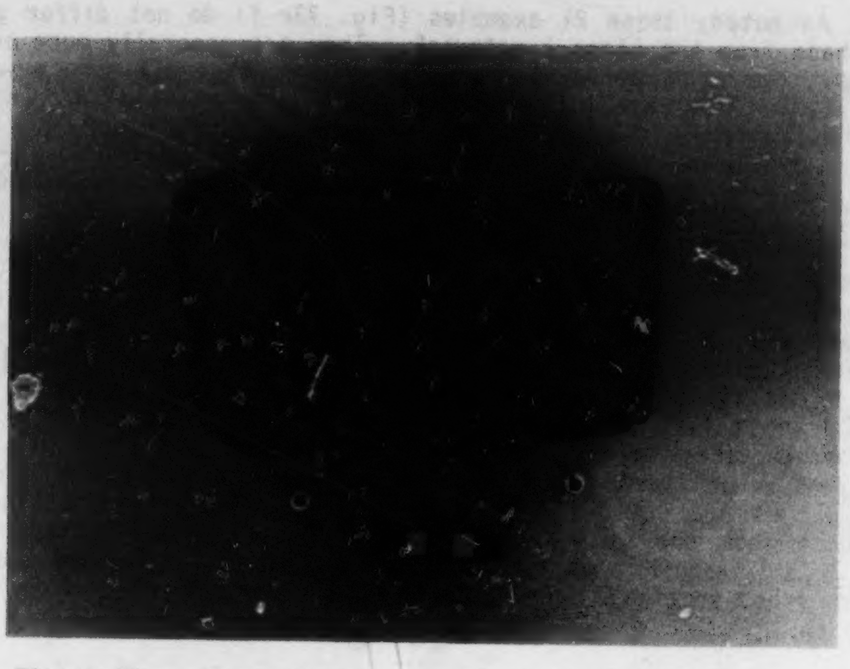

Figure 74. Hammerstones. a, Class IV; b, Class V.

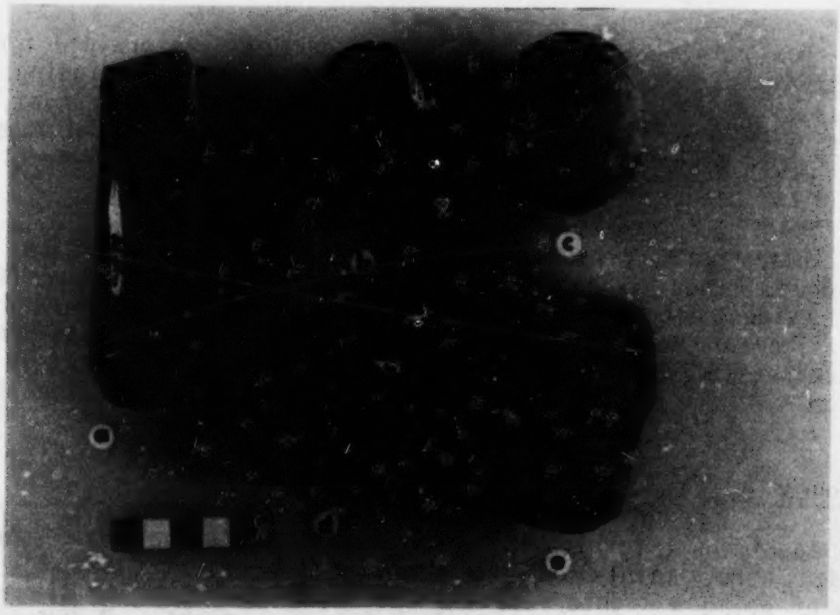

Figure 75. Chipped stone artifacts. a-d, pecking stones; e, Class III hammerstone.

Shapes are roughly similar to the Class I and II Hammerstones. There is a slight overlap in size and weight between these artifacts and the hammerstones, but as a group these are distinctly smaller and lighter. The triangular example noted above measure 5.0 by 5.5 cm. by ca. 1.8 cm. thick; weight is 90 g. Most of the other examples are slightly larger and heavier, an average weight being about 160 g. As indicated, all of the specimens noted above are quartzite, excepting a single example of chert.

One additional and unique example (Fig. 75a) is a long, narrow piece of relatively hard micrite with an oval cross-section and smooth, but not obviously smoothed or shaped surfaces. One end tapers slightly to a small, convex, markedly battered surface; some short deep spalls have detached from one margin adjacent to the surface. The opposite end has been trimmed off by two large flakes struck across the long axis. Length is 11.5 cm.; thickness is from 2.5 to 3.2 cm.; weight is 160 g.

Tabular Knives and/or Scrapers

This is as distinctive and consistent a group of artifacts (Fig. 76) as is available from the site. Exact use, however, is not known: thus the quibble in descriptive nomenclature. Six complete or nearly complete specimens are in the collection, along with seven fragments. Range in outline size is marked but other characteristics show a strong similarity.

The artifacts are pieces of thin, tabular micrite, generally quite long in relation to width. Shape is basically elongate rectangular, modified by rounded or slightly drawn ends; margins are straight or more commonly just slightly concave or convex. Only a little smoothing is evident on the faces of the artifacts.

On all the artifacts, margins have been entirely bifacially trimmed, and similar treatment is evident on a few ends. Flakes are characteristically short, broad, relatively deep and stepped. Edges formed are thus rather uneven and sinuous. Margins generally show a great deal of wear and there is some wear on three ends. On eight of the artifacts, one margin is worn at least to the point that any sharpness or unevenness along the edge is gone and on half of these, wear has almost obliterated the flake scars on the plane surfaces; edges opposite on the eight are also markedly worn but are still somewhat uneven and slightly sharp to the touch. The heavily worn edges are polished and rounded; similar wear is developing on the salients and concavities on the less worn edges.

Some of the extreme examples (in terms of edge reduction) have the appearance of purposefully backed artifacts (Fig. 76a,b), but production and wear indicates otherwise. These are probably artifacts used extensively against soft material. Length range is from 7.0 to 12.3 cm., width range is from 3.2 to 6.0 cm., thickness ranges only from 0.4 to 0.7 cm.; complete specimens weigh from 25 to 80 g.

Scrapers

Forty unifacially worked or retouched artifacts are separated into five descriptive classes. In the main, these are not formal or extensively formed artifacts; most are simply flakes with a margin or portion of a margin retouched to some extent.

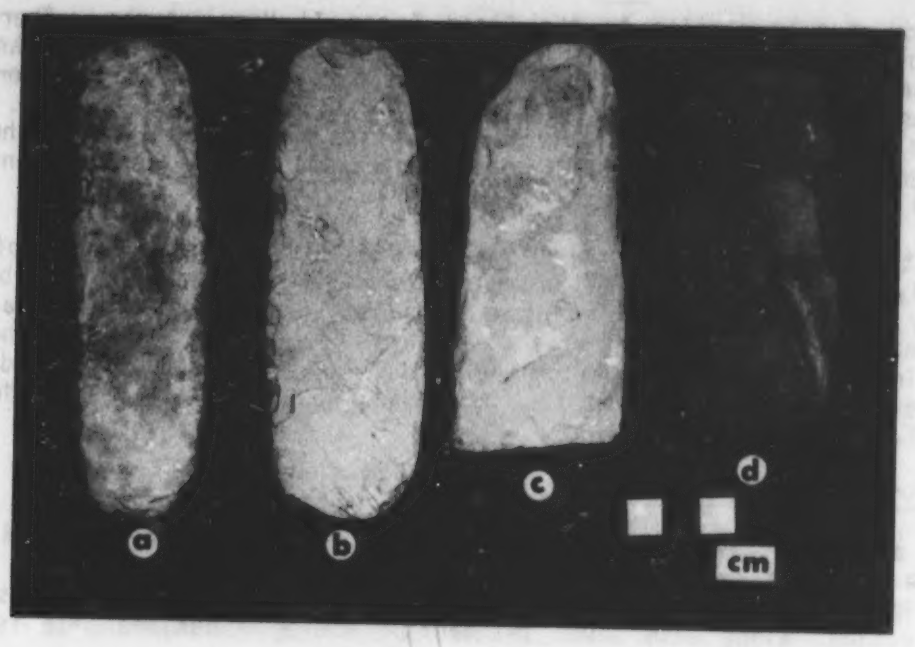

Figure 76. Tabular knives or scrapers.

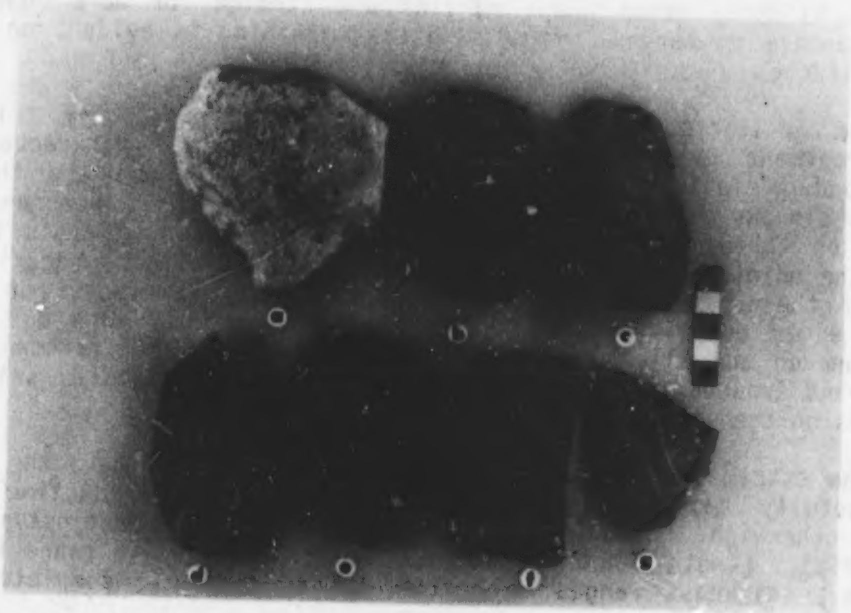

Figure 77. Chipped stone artifacts. a, Class I scraper; b,c, Class II scraper; d-g, edge-ground flakes.

Class I. These three specimens are thick, substantial pieces showing some attention to outline form as well as thick, excurvate , very steeply worked margins. Outline is round to oval; two are distinctly domed, the third (Fig. 77a) is more nearly tabular in cross-section but 2.5 cm. thick. The intermediate sized artifact of the three is 5.5 to 7.0 cm. in outline dimensions, up to 5.0 cm. thick, and weighs 270 g. Materials are micrite, 1; quartzite, 1; and chert, 1.

Class II. This group of 26 artifacts (Fig. 77b,c; 78a,b) ranges widely in size and outline from irregularly shaped flakes not much over thumbnail size to a big, thin, more or less rectangular primary flake measuring 14.0 by 8.0 by 1.5 cm. The sole defining characteristic is an area of low-angle retouch along a thin margin. Two pieces, a rough discoid and an elongate triangular example (Fig. 77b), may indicate some attention to form. Otherwise, these appear as tools of opportunity on convenient flakes. Materials are: chert/chalcedony, 19; micrite, 5; and quartzite, 2.

Class III. Eight specimens (Fig. 78d,e) are similar in general characteristics to the Class II examples, but show margins thickened by steep retouch. The largest example is a roughly oval flake, 4.0 by ca. 6.0 cm. in outline dimensions and 1.3 cm. thick; weight is 135 g. One example (Fig. 78e) may be part of a larger, formal artifact. Materials are: chert or chalcedony, 7; micrite, 1.

Class IV - "Spokeshaves". These are two chert flakes of irregular shape that have a narrow, concave scraping facet worked into a margin, thin in one case and rather thick in the other. The larger flake (Fig. 78c) is roughly 5.5 cm. by 3.0 cm. by 0.7 cm. thick; weight is 25 g.

Class V - Spokeshave/Graver. This is a little combination tool (Fig. 71c) on a small, light, roughly rectangular chert flake. A concave scraper facet is worked into one end and a graver tip is on a small salient adjacent - actually part of the scraper portion. Length is 2.82 cm., width is ca. 2.3 cm., thickness is ca. 0.3 cm.; the scraper facet is 1.25 cm. wide, and the grave is formed over a 0.5 cm. salient. Weight is 2/3 g.

Edge-Ground Flakes

Included here are 8 moderately large flakes (Fig. 77d-g) that show one margin markedly dulled and slightly flattened by use. Two margins are more or less straight; edges on the balance are distinctly convex. All dulled margins are rather substantial, ranging in length from 5.0 to 8.5 cm. Weight range is from 32.0 to 88.0 g. Materials are: quartzite, 4; micrite, 3; petrified wood, 1.

Drills

Two artifacts of considerably different form are probably perforating tools. One (Fig. 70e) is a light chalcedony artifact with an expanded base and a narrow, long, gently tapering, rather thin and fragile shaft, the top of which is broken. Extant total length is 2.47 cm., basal width is 1.80 cm., remnant shaft length is 1.9 cm., shaft width is ca. 0.5 cm., maximum shaft thickness is 0.32 cm. Weight is ca. 1.6 g.

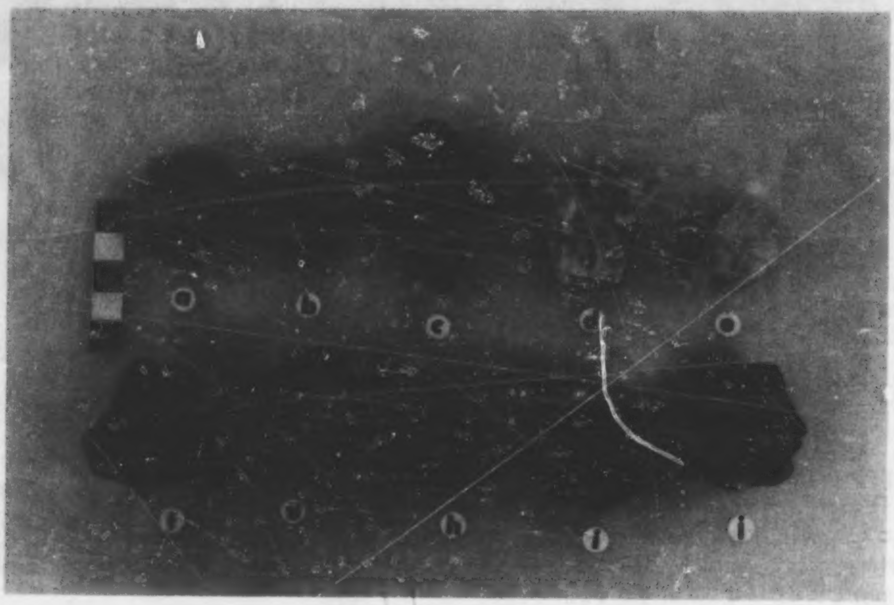

Figure 78. Chipped stone artifacts. a,b, Class II scrapers; c, Class IV scraper; d,e, Class III scrapers; f-j, small chalcedony cores.

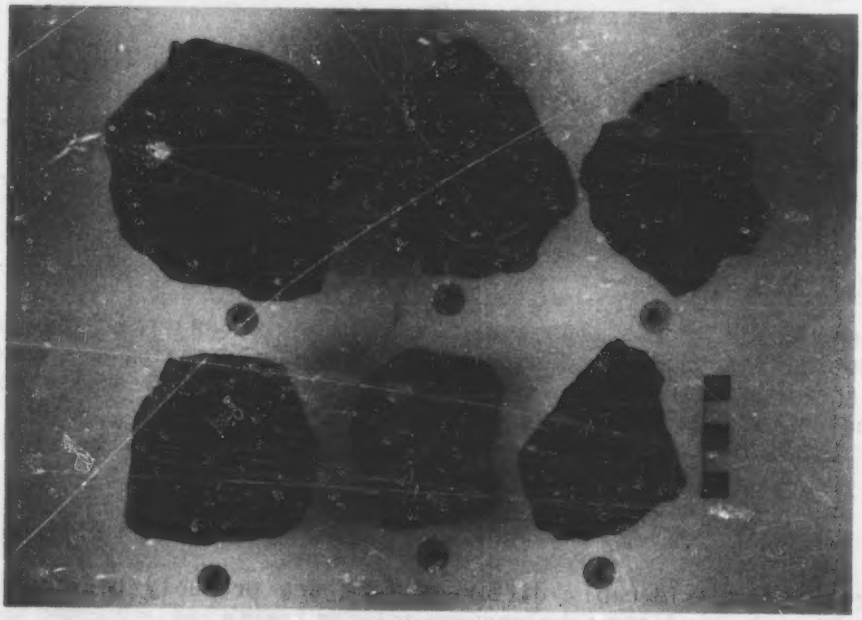

Figure 79. Cores. a,b, quartzite; c-e, micrite; f, large chalcedony core.

The second specimen (Fig. 70d) is a heavier but nicely and extensively worked and formed piece of chert. It consists of a long, relatively narrow rectangular portion (square base and parallel sides) and a relatively short, rapidly but smoothly drawn tip section that is thick and durable. Total length is 4.2 cm., width of the base and rectangular portion is constant at 1.6 cm., tip section length is 1.3 cm., thickness is constant at 0.6 cm. over most of the length but tapering quickly to the tip. Weight is 52.0 g.

Unique Objects

Of two individually unique artifacts one is a tiny, extensively and bifacially worked and formed piece of chalcedony (Fig. 71e). Outline is triangular with a slightly pointed base. Cross-section is smooth and regular but quite thick, noticeably thicker toward the base. Length is 2.2 cm., maximum width is 1.55 cm., thickness ranges from 0.4 to 0.75 cm., and weight is 2.3 g.

The second specimen (Fig. 71d) appears to be most of the blade section of a fairly large projectile point, missing tip and base and showing a few retouch or trimming flakes at both ends. Cross-section is thin and smoothly lenticular. Remarkable about the artifact, however, is its smoothness. Flake scars are still evident on the faces; but the faces, margins, and ends are very smooth and waxy to the touch. Perhaps this is a fetish or charm item of some sort. Length is 3.5 cm., widths are 1.20 and 2.25 cm., thickness is ca. 0.6 cm., and weight is 6.2 g. Material is chert.

Utilized Flakes (Microwear)

Given the large amount of debris in the collection vis-a-vis the paucity of formal tools or pieces with readily observable wear or use patterns, it seemed quite probable that various activities at the site included casual, incidental use of convenient pieces that were utilized as needed and then discarded. This assumption was tested by screening a sample of 200 pieces of chert/chalcedony plus five pieces of obsidian under the binocular microscope at 25 power. Pieces of chert/chalcedony were selected at random from an initial debris sorting lot that included flakes of some substance with appreciable lengths of margin extant. All available obsidian was used. Quartzite was not used as the writer had difficulty discerning wear on that material. The large micrite sample was not used, partly because that material apparently shows a lot of incidental wear, but mainly because most of it had been through the acid bath needed to clean materials from the site.

The limited test reflected that 80 of the 205 pieces inspected, including all obsidian, appeared to show fairly definite signs of wear, particularly in the form of polish and smoothing and micro-flake scars; striations were occasionally seen but were not that common nor that obvious. No attempt has been made to quantify the kinds or patterns of wear, or to associate various wear patterns with particular activities. Rather, it is simply noted that there was substantially more use of available material at the site than can be abstracted solely by reference to formal characteristics and indications evident to the unaided eye.

TABLE 2
CHIPPED STONE ARTIFACTS: AREA A

		Small Basal-Notch Points	Small Corner-Notch Points	Small Unnotched Points	Large Points	Gypsum Points	Point or Scraper	Unident. Point Frags.	Finished Bifaces	Preforms	Choppers	Hammerstones	Packing Stones	Tabular Knives/Scrapers	Scrapers	Edge-Ground Flakes	Drills	Unique Objects	Utilized Flakes	Quartzite Cores	Micrite Cores	Chert/Chalcedony Cores	Chipped Stone Cache	TOTALS
Room AI1 -	Fill																							
	Floor																							
Room AI2 -	Fill																							
	Floor																							
Room AI3 -	Fill										1	1			1	1								4
	Floor																							
Room AI4 -	Fill								1					3								2		6
	Floor									1														1
Room AI5 -	Fill		1												1				1					3
	Floor																							
Room AI6 -	Fill									2	1	1							1					5
	Floor																							
Room AI7 -	Fill																					1		1
	Floor											1										2		3
Room AI8 -	Fill									1			1						2					4
	Floor								1															1
Room AI9 -	Fill																		1			1		2
	Floor									1														1
Room AI10 -	Fill																							
	Floor																							
Room AI11 -	Fill											1							1					2
	Floor																							
Room AI12 -	Fill					1				1		1							1					4
	Floor									2		1			1							2		6
Room AI13 -	Fill									1				1					1		1			4
	Floor																							
Structure AI -	Fill		1	1					1	1		3	2	1	2				2	1		1		16
	Floor							1			1		2				1		1		1			7
Structure A2 -	Fill								1	1		1		1		1					1			6
	Floor											1				1					1			3

TABLE 2 (Continued)
CHIPPED STONE ARTIFACTS: AREA A

	Small Basal-Notch Points	Small Corner-Notch Points	Small Unnotched Points	Large Points	Gypsum Points	Point or Scraper	Unident. Point Frags.	Finished Bifaces	Preforms	Choppers	Hammerstones	Pecking Stones	Tabular Knives/Scrapers	Scrapers	Edge-Ground Flakes	Drills	Unique Objects	Utilized Flakes	Quartzite Cores	Micrite Cores	Chert/Chalcedony Cores	Chipped Stone Cache	TOTALS
Midden A1:																							
0-15 cm		1	1				1				1		1	2	1			2	3	4	8		25
15-30 cm	1										2	1		2				1	1	10	1		19
30-45 cm			1					1	2	1		1	1	2				2			2		13
45-60 cm																							
Midden A2:																							
0-15 cm																			1				1
15-30 cm							2		1			3		4	1			9		3	3		26
30-45 cm								1													1		2
45-60 cm																							
Test Trenches:																							
0-15 cm		1					1	3	2	2	3			2				6		5	13		38
15-30 cm		1						1	3		3	1	1	1	1			10	1	1	8		32
30-45 cm	1								2		1										1		5
45-60 cm																							
Excavation Units:																							
Stratum A1																		3		1	1		5
Stratum A2	1	3	2				1	4	8		4	2	1	5		1		10	2	8	20		72
Stratum A4																							
Surface/Unknown	2	1	1				2	2	4	5	11	4	1	3	2			3	2	8	8		59
TOTALS	5	9	5	1	1	0	8	16	33	11	35	18	11	26	8	2	0	57	11	44	75	0	377

Cores

Included here are 204 pieces of various kinds of source material that are of some substance (other than flakes with multiple dorsal scars) and that show several scars from the removal of flakes. Even given a fairly "liberal" definition, there is a lot of material.

Twelve relatively large specimens (Fig. 79a,b) are made of some of the finer-grained quartzites seen at the site. Several show enough flake scars to lend a "regular" appearance. One specimen of average size is more or less rounded and measures 5.0 by 6.0 by 8.0 cm; weight is 440 g.

Fifty-nine micrite examples (Fig. 79c-e) are similar in size and shape to the quartzite specimens, ranging to somewhat larger and slightly smaller. Several examples are in the ca. 6 cm. in diameter range and weigh around 350 g.

Only a dozen or so of the 133 chert/chalcedony examples approach the average size (Fig. 79f) for the quartzite and micrite pieces. Quite striking is the small size of the balance and vast majority of the sample. Common are extensive series of scars, perhaps indicating these are expended or used-up artifacts. Many of the small examples tend to be slightly elongate; an average example measures ca. 2.0 by 3.0 by 4.0 cm., and weighs 50 g.

Chipped Stone Cache

In the fill of Room BII1, ca. 20 cm. above the floor and near the northwest corner was found an intense concentration of chert and chalcedony artifacts and debris. Much of the material is in the form of blocky, thick flakes and fragments of moderate size (2 to 4 cm. long, 1.5 to 2.0 cm. wide and 1.0 to 2.0 cm. thick); also found, however, were 13 "small" cores (see above), one small perform, a small basal-notched point, a small biface, and 70 interior flakes. The material was mainly confined to an area ca. 30 cm. in diameter and 2 or 3 cm. thick. The point and biface were separated from the lot and are reported elsewhere; the balance of the material is only noted here.

Stone Waste

Some characteristics of the flaking debris were outlined in the introduction to this section. Emphasized was the amount of debris as well as the unlovely character of a goodly portion of it; also noted was an apparent correlation between the amount and character of the debris and local availability.

Raw numbers of the various general kinds of stone are presented here. The debris has not been specifically segregated by flake type, nor has the effort been expended to replace and tabulate the material into the numerous provenience categories used to control other artifacts.

Ghert/Chalcedony. Present are 1978 individual pieces of flaking debris, including the residue from the microwear effort. By reference to bulk rather than actual fragment numbers, the majority of the material was probably useless as initially struck as it is grainy or full of fracture planes or impurities. In actual numbers, however, the major portion of the material consists of relatively small flakes, most of which are interior flakes.

Also included in the collection are 25 nodules that have not obviously been broken or flaked. Most of these appear as quite impure and of poor quality.

TABLE 3
CHIPPED STONE ARTIFACTS: AREA B

	Small Basal-Notch Points	Small Corner-Notch Points	Small Unnotched Points	Large Points	Gypsum Points	Point or Scraper	Unident. Point Frags.	Finished Bifaces	Preforms	Choppers	Hammerstones	Pecking Stones	Tabular Knives/Scrapers	Scrapers	Edge-Ground Flakes	Drills	Unique Objects	Utilized Flakes	Quartzite Cores	Micrite Cores	Chert/Chalcedony Cores	Chipped Stone Cache	TOTALS
Room BI1 - Fill														1				3					4
Floor														1									1
Room BI2 - Fill				1		1																	
Floor																		1			1		4
Room BI3 - Fill																							
Floor													1	1						2	2		6
Room BI4 - Fill	1																						
Floor																		1			1		3
Room BII1 - Fill	2																						
Floor								1	3					1				1			3	(1)	11
Room BII2 - Fill									1		2												
Floor																		1			4		8
Room BII8 - Fill								2	1		1			1									
Floor																		4			6		15
Cist B1 - Fill																							
Cist B2 - Fill																							
Cist B3 - Fill		1		1					1	1	4	1											
Floor																		2	1	3	1		16
Cist B4 - Fill		1						1															
Floor																				1	1		4
Cist B5 - Fill									1		1												
Cist B6 - Fill																							2
Use Surface B3	2	1							2	1	2	2					1	2		2	8		23
Use Surface B2																							
Use Surface B1													1										1
Firepit B2																							
Test Trenches:																							
0-15 cm																							
15-30 cm																		1		1	7		9
30-45 cm																							
Excavation Units:																							
Stratum B1																							
Stratum B2	1						2	2	4	1	2			9			1	7		6	24		59
Stratum B3																							
TOTALS	6	3	0	2	0	1	2	6	13	3	12	3	2	14	0	0	2	23	1	15	58	0	166

Quartzite. This is only a moderately large sample of 222 pieces. It is dominated by large primary flakes, or probably what are more properly seen as pieces of split cobbles. Also with the material are 14 pebbles and cobbles of various but apparently useful sizes that show no modification.

Micrite. This large collection of 801 pieces is still somewhat bothersome. While a full range of flakes is represented, the grouping is strongly dominated by large primary as well as large interior flakes that have available a great deal of useful margin. This material obviously needs more attention, but will require a sample less harshly treated in the lab (see Utilized Flakes, above).

In addition to the flakes, 21 apparently unmodified nodules were recovered. All are fist-size or slightly larger and tend to be rounded in form.

Miscellaneous. Besides the five obsidian flakes noted with the utilized flakes, above, the only other materials found in the collection are three small basalt flakes and eight pieces of petrified wood.

Ground Stone

This seems to be a rather small assemblage for an Anasazi site of respectable size. Particularly limited are actual seed processing tools, which seems somewhat incongruous in view of the storage capacity represented by the various structural units found over the site.

Besides the limited metate and mano sample, there are just a few additional tools and tool categories represented including an ax; an anvil stone; some smoothing, polishing, and abrading stones; a few apparent pot lids; and some miscellaneous formed and ground fragments. The only candidates for nonutilitarian items are two incised disks.

Metates

Of the three complete examples in the collection, one (Fig. 80a) is a large, well-formed and extensively used trough-type found broken in situ in the lower fill of Structure A2. Outline is sub-rectangular with the closed end being somewhat rounded and less broad at ca. 30 cm. than the squared, 40-cm.-wide trough end. The trough per se is wide and rectangular measuring 41 cm. long and a constant 26 cm. wide; maximum depth is 3.5 cm. Overall artifact length is 57 cm.; thickness varies from 7 cm. at the trough end to 12 cm. at the closed end. Weight is 34.02 kg. Material is a fine-grained granite.

A rough, unformed slab example (Fig. 80b) is made on a oval piece of sandstone measuring 42 cm. in length, 25 cm. in maximum width, and 6 cm. in fairly constant thickness. Both faces appear to be ground but neither extensively so. Weight is 5.90 kg.

A second slab specimen (Fig. 80c) may actually be a fragment but it was probably only somewhat longer, rather than wider. As here described, it is a rectangular piece of sandstone 36 cm. long and a constant 18 cm. wide. The grinding surface occupies most of this outline area and is flat but distinctly sloped from one 6 cm. thick margin to the opposite that is only 2 cm. thick. The opposing surface also appears to be fully ground, but is just slightly convex. Weight of the artifact is 4.10 kg.

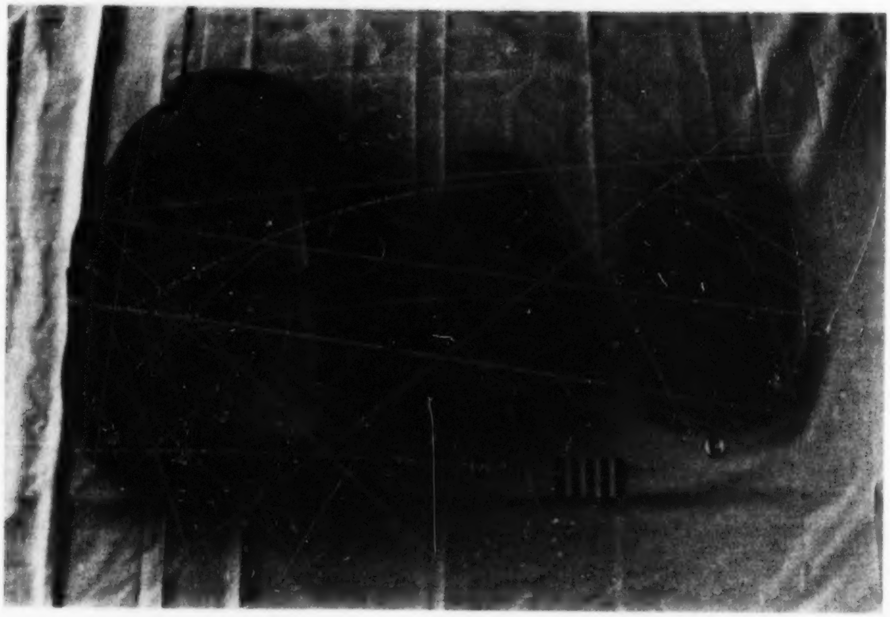

Figure 80. Metates. a, trough; b,c, slab

Eight additional artifacts are represented by rather minor fragments. Four appear to be from troughed forms and four from slabs. One is granite, the rest are sandstone.

Manos

As with the metates, this is a rather limited sample consisting of only nine complete specimens and 16 fragmentary examples. Two descriptive classes are recognized on the basis of certain characteristics of form and size; six complete specimens are individually described as they bear little resemblance to the classed items or one to another. All but one small specimen are unifacial. Several examples show marked battering on one or both ends that is taken to represent purposeful pounding use rather than shaping marks.

Class I. Three complete manos (Fig 81) and two substantial fragments are large, heavy loaf-shaped artifacts, long in relation to width, basically rectangular in outline, and with thick but smoothly regular cross- and longitudinal sections. Overall shaping is evident on all examples; three are still rather rough from pecking, two are quite smooth. Three show flat grinding surfaces on the long axis, two have noticeably convex surfaces. End-battering is not characteristic of this class.

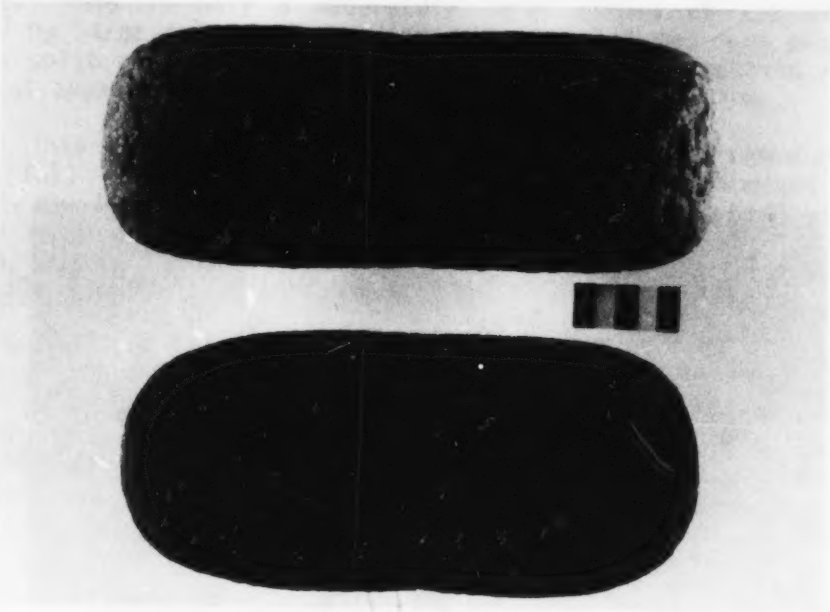

Figure 81. Class I manos.

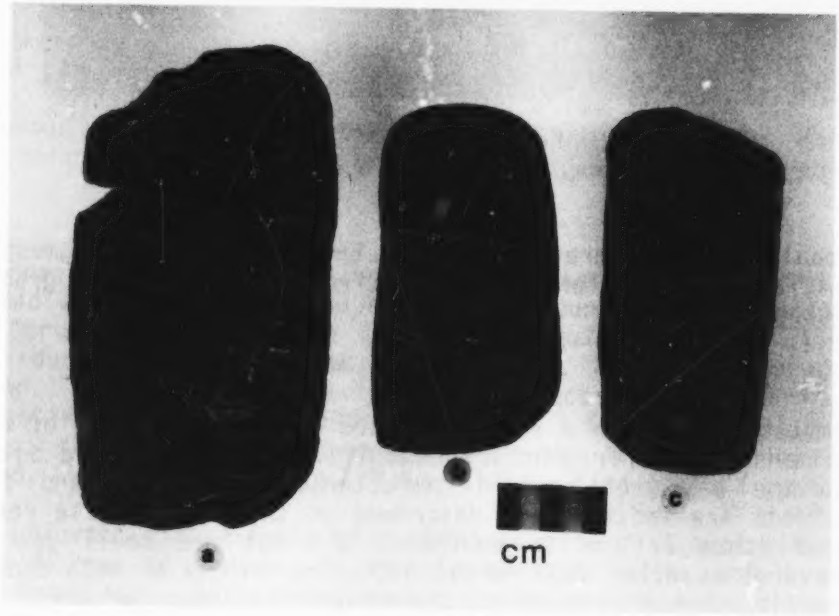

Figure 82. Manos. a, Class II; b,c, individually described.

One complete example (Fig. 81b) has well-developed circular pits, each ca. 3.5 cm. in dia., nearly centered on opposing long margins and 2.2 to 2.6 cm. above the grinding surface. These were no doubt pecked in, but are quite smooth. The second complete example has a single, smaller (2.0 cm. dia.) dimple on one margin; the third whole specimen (Fig. 81a) has pecked depressions on both margins that are large, shallow, rough, and noticeably offset.

Lengths of the complete examples are 20.5 cm., 24.7 cm., and 27.0 cm.; maximum widths at approximate mid-length are 11.0 cm.; 11.5 cm., and 10.5 cm.; mid-length thicknesses are 7.0 cm., 7.4 cm., and 5.8 cm.,; weights are 2.6 kg., 3.6 kg., and 2.85 kg. Materials are: dark, coarse-grained granite, 3; light, fine-grained granite, 1; sandstone, 1.

Class II. There is only one complete artifact in this group but five additional fragments indicate a consistent form that is rectangular in outline but markedly thinner and distinctly broader in relation to length than the Class I specimens. Overall shaping is not as evident as on the Class I examples and sections are much less smooth and regular. The complete example is actually slightly concave across the top surface. Some battering is evident on all ends excepting one fragment; one specimen shows red ochre on the top (unused) surface. Grinding surfaces appear as flat on all but the complete specimen.

The complete specimen (Fig. 82a) is 20.6 cm. long and a fairly consistent ca. 11.0 cm. wide; thickness ranges from 2.6 to 3.0 cm. over the approximate longitudinal center, with the smaller measurement toward the middle; weight is 1270g. The fragments indicate artifacts of no larger outline dimensions but two show greater thicknesses at 3.6 and 4.3 cm. All examples are of sandstone.

Unclassed, Individual Manos. Two of the six manos here are actually sufficiently similar in form to be described together, but only by virtue of being made on minimally shaped, rectangular pieces of sandstone. Cross-sections on both are rectangular; longitudinal section on the larger piece (Fig. 83a) is also rectangular, on the smaller (Fig. 82c) it is somewhat irregular. Grinding surfaces are flat; both ends on both pieces are distinctly pitted and battered. The bigger mano is 23.5 cm. long, ca. 8.3 cm. wide, 4.5 cm. thick, and weighs 1723 g.; comparable measurements for the smaller example are 15.0 cm., 7.2 cm., 3.2 to 4.6 cm., and 934 g.

The third specimen (Fig. 82b) is a relatively small artifact, shaped and smoothed to a nearly rectangular outline 15 cm. long and ca. 7.5 cm. wide. The grinding surface is flat and no battering is evident on the ends. About two-thirds of the "top" of the artifact is taken up by a sloped, ground surface, slightly concave along the length of the artifact as though it were a grinding base rather than the active piece. This presents an irregular cross-section 4.5 cm. thick at one margin, 5.0 cm. thick at maximum (and the top of the ground surface), and 2.0 cm. thick at the other margin and lower side of the ground surface. Weight is 771 g.; material is sandstone.

The fourth specimen Fig. 83e) is small and somewhat squarish in outline (10.0 by 11.0 cm.), but thick and heavy with a rectangular cross-section measuring 6.5 cm. Three margins are nicely smoothed, the fourth is heavily battered and broken. The grinding surface is very smooth, almost polished, and is flat save right at the two opposing margins where it curves up rather sharply; the opposing "top" surface is planar, but rough and pitted - apparently from some sort of natural attrition that has affected several pieces in the collection of the same coarse-grained granite the mano is made from. Weight of the artifact is 1247 g.

The fifth individual mano (Fig. 87c) is a small bifacial example, near rectangular in outline and section; although, while one grinding surface is basically flat, the other is slightly convex on the shorter axis. Length is 10.4 cm., width is 8.0 cm., thickness varies slightly from 4.0 to 4.4 cm., weight is 475 g. Material is sandstone.

While close to rectangular in cross-section, the final example (Fig. 83b) is similar in form and shaping characteristics to Class I examples, but it is much smaller. Margins, in particular, on these artifacts are well-smoothed; the grinding surface is somewhat pitted and just slightly convex across the shorter axis. Length is 14.1 cm., width is 9.7 cm., thickness is ca. 5.7 cm., and weight is 1417 g. Material is granite, dark and rather coarse-grained.

Unclassified Fragments. Seven obvious mano fragments are either too small to work with, do not appear to fit within the two descriptive classes, or are not complete enough to attempt individual descriptions. One example, probably about one-half of a complete artifact, shows characteristics of both established classes: it is quite similar to Class II examples in outline and cross-section form, but in degree of shaping and mass, it more resembles Class I pieces. Materials for the group are granite, 5; quartzite, 2.

Polishing Stones

One complete specimen and six fragments of apparently similar artifacts show large areas on one or both faces that are very smooth and show some polish luster. The polish areas are not faceted, and do not show striations under 25X magnification.

The complete example (Fig. 84a) is roughly oval in outline and smoothly lenticular in cross-section. Length is 13.7 cm., width is 9.2 cm., and thickness is 4.7 cm. Weight is 934 g. The fragments indicate artifacts of generally similar size and shape. All are quartzite.

Polishing Pebble

A single water-worn granite pebble, nearly round in outline and elliptical in cross-section, shows a distinctly faceted, highly polished area on one surface. Diameter is ca. 3.7 cm; thickness is 1.9 cm.; faceted area is 1.8 cm. in dia.; weight is 45 g.

Smoothers or Abraders

This is a small series of seven artifacts of various forms and sizes that reflect little or no purposeful shaping but show a variety of ground or abraded surfaces on broad areas, margins, or edges. Generally indicated is either rather light use, or use against relatively soft materials.

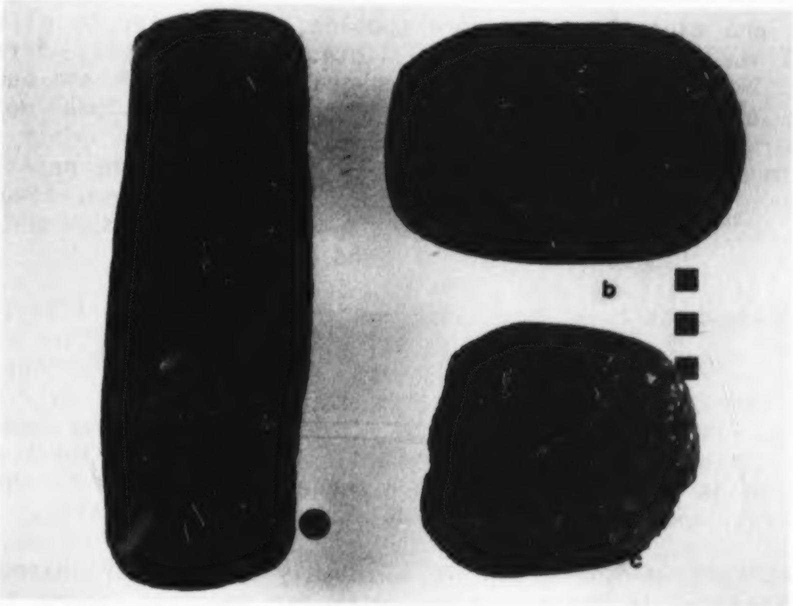

Figure 83. Individually described manos.

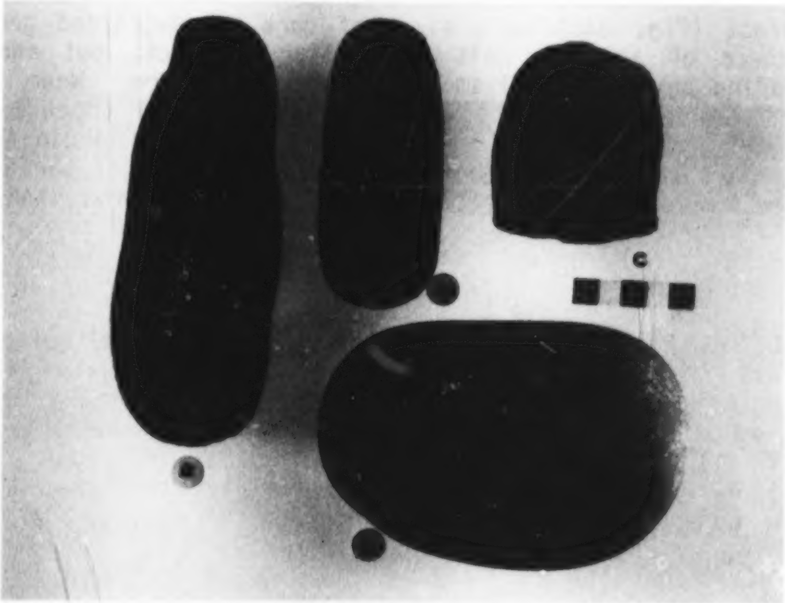

Figure 84. Ground stone artifacts. a, polishing stone; b-d; smoothers or abraders.

Three examples are elongate water-worn cobbles, rectangular to elliptical or ovate in outline, and rectangular, elliptical or slightly irregular in cross-section. Two of these are hard, fine-grained sandstone and each has one worn face; the larger (Fig. 84b) of the two shows some additional wear on both margins and marked wear on one edge. The third in the group, a coarse sandstone specimen, shows wear on both faces: one a plane, the opposite convex across the short axis. The smaller of the three is 11.0 cm. long, 4.7 cm. wide, ca. 3.0 cm. thick, and weighs 350 g.; comparable measurements for the larger are 15.8 cm., ca. 5.9 cm., 3.9 cm., and 680 g.

Two small sandstone examples could be portions of larger artifacts or they could be complete as they are. One appears as a portion of a tiny rectangular mano (Fig. 84b) with a thin rectangular cross-section and one extensively worn plane surface; length is 7.2 cm., width is 6.2 cm., thickness is 2.5 cm., and weight is 225 g. The second piece is quite similar in size and shows a smooth plane surface, slightly beveled at the margin but continuous to a worn edge; the opposite edge is roughly thinned in a manner very similar to that seen on construction slabs, and the artifact may be a reused piece of slab.

The largest artifact of the group is a roughly rectangular-shaped piece of sandstone, rectangular in cross-section, with one smoothed, plane surface but showing no evidence of shaping, smoothing, or use on the other surface, the margins, or ends. Length is ca. 15.5 cm., width is ca. 10 cm., thickness is 4.2 cm., and weight is 1190 g.

The final artifact (Fig. 84c) is a piece of dark, fine-grained granite that has the appearance of a small celt or similar artifact, but shows little evidence of shaping beyond a well-smoothed water-worn form. Wear is evident only along both margins, but wholly involves both and appears as quite extensive and well-developed for a small, hard stone. One margin is smoothly convex; the other is slightly flattened or faceted. Length of the artifact is 11.0 cm., center width is 4.5 cm., center thickness is 2.5 cm., and weight is 240 g.

Anvil

This is a cobble (Fig. 85) of apparently water-worn sandstone, quite tough and with a distinctly yellowish cast to its color - quite unusual for the site. In shape the stone is elongate but irregular. One end is more or less square and the other rounded; one margin is fairly straight, the other markedly convex. Section is nearly rectangular on both axes, although there is a marked bevel to one surface at the rounded end. Length of the stone is ca. 26.0 cm.; width varies from 9.5 to 14.5; thickness is ca. 7.0 cm, and weight is 4.37 kg.

The most striking feature of the stone is a large, slightly slanted hole than runs clear through it. The hole is ca. 5.0 to 6.0 in dia. and is nearly centered on the short axes, but well toward the rounded end of the stone on the long axis. The hole is obviously natural, although there is some wear around the circumference at both surfaces.

Primary use of the stone is reflected on a ca. 10 cm. by 10 cm. area of one surface that runs from margin to margin and from the edge of the hole to the

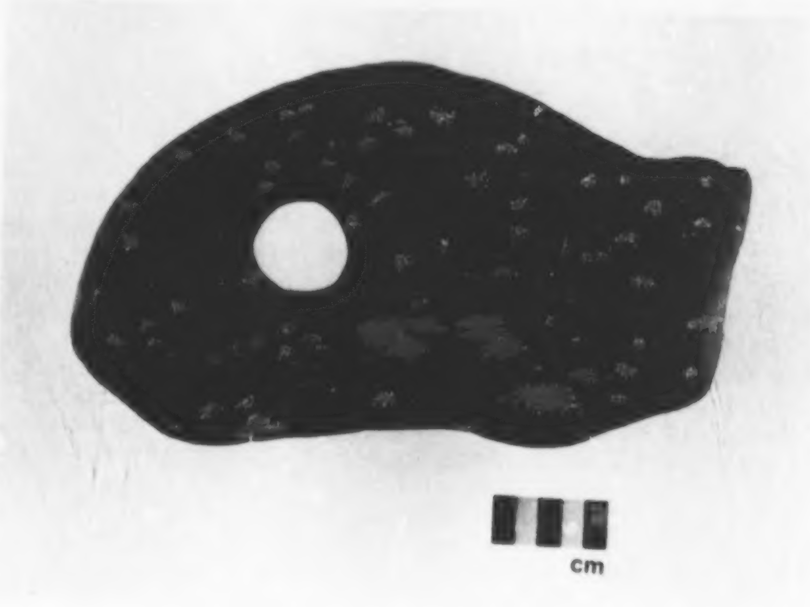

Figure 85. Anvil

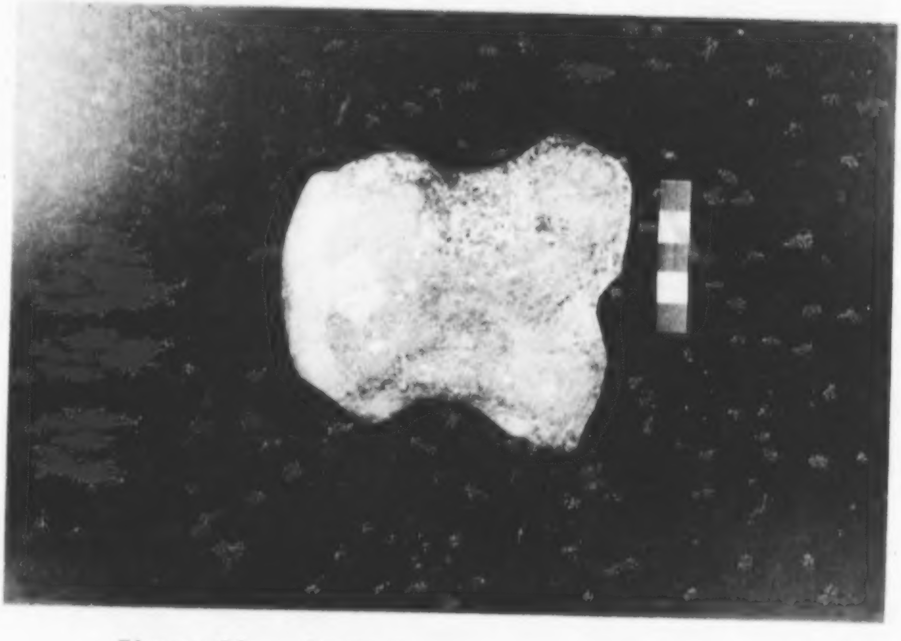

Figure 86. Stone ax.

square end. This flat to slightly undulating surface is quite heavily pitted and scored as if used as an anvil or pounding surface. This is a floor contact artifact (Fig. 51) from Room BI1.

Stone Ax

A single complete specimen (Fig. 86) is the only evidence of this type of tool recovered from the site, as well as the only evidence of a relatively heavy tool designed for hafting. It is a floor contact artifact from Room BI1.

Basic shape of the artifact can be described as a modified square as it is only slightly longer from bit to butt (10.1 cm.) than it is across the butt (9.5 cm.). The actual bit is only 6.5 cm. long but there is damage at both ends and the area used to draw the stone surfaces to the bit edge is about 8.5 cm. wide. Section, save in the bit area and across the notches, is roughly tabular; thickness at the butt is from 2.6 to 3.9 cm.; approximate mid-point thickness (on both axes), is 2.7 cm., thickness just behind the bit is 2.4 cm.

Broad (ca. 4.3 cm.), relatively shallow notches are in opposing margins. These are very smooth and show extensive polish. Notch development was carried slightly onto both essentially unmodified surfaces, but not across them; there is, however, a discernable band of wear and polish connecting the notch areas across both surfaces. A notch centered on the squared but essentially raw and unmodified butt is 2.3 cm. wide and less deep and less worn than the margin notches. The "corners" of the butt are rough and unmodified, as is the small amount of surface area on both faces between the butt and the area involved with the lateral notches.

The bit area is smoothly bi-convex in section, although slightly steeper from one plane than the other. Actual cutting edge is excurvate and is quite sharp and undamaged.

This appears as a much-used but still serviceable tool. Material is basalt. Weight is 485 g.

Incised Disk

This is a small, soft sandstone disk (Fig. 87a) ca. 8.3 cm. in dia. and 2.3 cm. thick. Plane faces are lightly smoothed but still show some rough areas; the circumference edge is smoothed flat, although there are some rough and spalled areas and edge thickness is not wholly consistent. Weight is 230 grams.

The artifact is roughly bisected twice by incised, "U"-shaped grooves cut around the margins and across the faces. Rather than quartering the artifact, however, the lines intersect at other than right angles, isolating two sets of segments. On the margins of the segments are closely spaced series of incised lines, slightly, less deep than the segmenting lines, that cut across the margins and run from slightly, to up to 1 cm. out on both faces. The smaller segments show eight lines each; the larger show 11 and 12 lines.

A second artifact (Fig. 87b) is similar only in being somewhat circular in outline, thickly tabular in cross-section, and having been roughly quartered

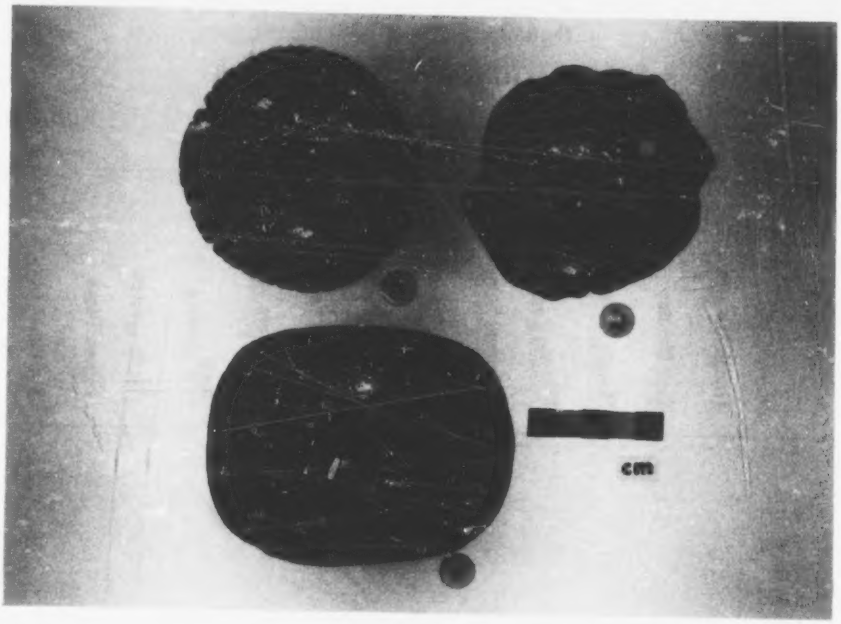

Figure 87. Ground stone artifacts. a,b, incised disks; c, small mano.

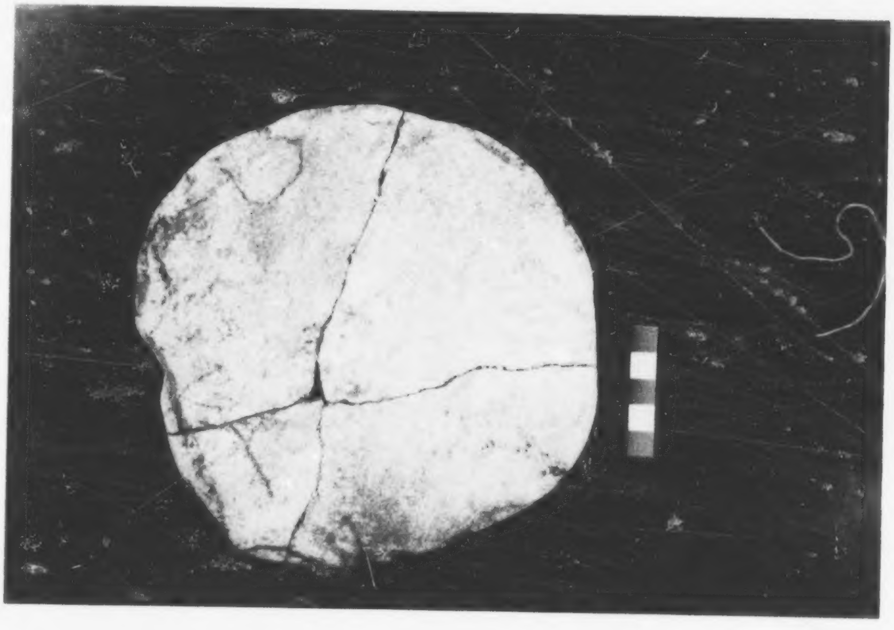

Figure 88. Pot lid.

TABLE 4
GROUND STONE ARTIFACTS: AREA A

		Trough Metates	Slab Metates	Metate Fragments	Manos	Individual Manos	Unclass. Mano Frags.	Polishing Stones	Polishing Pebble	Smoothers/Abraders	Anvil	Ax	Incised Disks	Pot Lids	Misc. Formed Frags.	Misc. Ground Frags.	TOTALS
Room AI1 -	Fill																
	Floor																
Room AI2 -	Fill																
	Floor																
Room AI3 -	Fill																
	Floor																
Room AI4 -	Fill									1							1
	Floor																
Room AI5 -	Fill																
	Floor																
Room AI6 -	Fill		1		1												2
	Floor																
Room AI7 -	Fill																
	Floor		1														1
Room AI8 -	Fill				1												1
	Floor																
Room AI9 -	Fill																
	Floor																
Room AI10 -	Fill																
	Floor																
Room AII1 -	Fill			1													1
	Floor																
Room AII2 -	Fill						1										1
	Floor																
Room AII3 -	Fill													1		1	2
	Floor																
Structure A1 -	Fill									1				3			4
	Floor																
Structure A2 -	Fill	1													1		2
	Floor					1											1

TABLE 4 (Continued)
GROUND STONE ARTIFACTS: AREA A

	Trough Metates	Slab Metates	Metate Fragments	Manos	Individual Manos	Unclass. Mano Frags.	Polishing Stones	Polishing Pebble	Smoothers/Abraders	Anvil	Ax	Incised Disks	Pot Lids	Misc. Formed Frags.	Misc. Ground Frags.	TOTALS
Midden A1:																
0-15 cm							1								1	2
15-30 cm						1										1
30-45 cm				1										2	2	5
45-60 cm																
Midden A2:																
0-15 cm							1									1
15-30 cm			1										1			2
30-45 cm																
45-60 cm																
Test Trenches:																
0-15 cm													2		1	3
15-30 cm						1			2						1	4
30-45 cm			1	1										1		3
45-60 cm																
Excavation Units:																
Stratum A1				1												1
Stratum A2			2	2		1	2		1						7	15
Stratum A4																
Surface/Unknown			3	1	2	3									2	11
TOTALS	1	2	8	8	3	7	4	0	5	0	0	0	7	4	15	64

by incised grooves around the margins and across the faces. These lines do intersect at right angles on both faces but segments are unequal in size, partly due to the rough, irregular outline of the stone.

Material is soft sandstone. Diameter is from 7.2 to 8.2 cm., thickness is fairly constant at 4.0 cm., and weight is 340 g.

Pot Lids

Two roughly circular, thin sandstone disks may have been used to cover wide-mouth jars. Margins of both have been shaped and thinned via bifacial flaking, much in the manner of the nicely dressed slabs seen in some of the storage rooms on site. About one-third of the circumference of one artifact has been ground smooth; both faces on both artifacts also show some smoothing.

One disk is from 15.5 to 17.0 cm. in dia., 1.3 cm. thick, and weighs 628 g. The second is from 16.8 to 17.8 cm. in dia., 1.0 cm. thick, and weighs 737 g.

Six additional pieces of sandstone with dressed edges indicate six similar artifacts of comparable outline size. Four are noticeably thinner and one is slightly thicker.

Miscellaneous Formed Fragments

Six pieces of thin, tabular sandstone show well-smoothed margins but are too fragmentary to indicate full form or use. Probably only rather small artifacts are represented as thickness range is from 0.4 to 0.6 cm. Rounded to elliptical, and squarish to rectangular forms are suggested by the remnants. While edge-grinding is extensive where present, planar is not, although surfaces are relatively smooth and regular.

Two additional pieces are similar but thicker and do show some smoothing on the planar surfaces. They could be from fairly large artifacts but are themselves minor fragments and there is no way to project size or form. Both are sandstone; thicknesses are 1.5 and 1.8 cm.

Miscellaneous Ground Fragments

Included are 16 pieces of sandstone of various sizes and irregular forms that show tabular cross-sections, raw or broken margins, and at least one planar surface that is ground smooth. Probably these are portions of larger artifacts, and some may be portions of light grinding slabs or thin slab metates; they simply do not suggest particular forms or specific functions.

The larger-in-outline piece included is a trapezoid ca. 11.0 by 9.5 cm. Most of the pieces are between 1.5 and 2.5 cm. in thickness, although the range is from 1.0 to 5.0

TABLE 5
GROUND STONE ARTIFACTS: AREA B

		Trough Metates	Slab Metates	Metate Fragments	Manos	Individual Manos	Unclass. Mano Frags.	Polishing Stones	Polishing Pebble	Smoothers/Abraders	Anvil	Ax	Incised Disks	Pot Lids	Misc. Formed Frags.	Misc. Ground Frags.	TOTALS
Room BI1 -	Fill														1		1
	Floor										1	1					2
Room BI2 -	Fill																
	Floor																
Room BI3 -	Fill								1								1
	Floor																
Room BI4 -	Fill																
	Floor																
Room BII1 -	Fill																
	Floor																
Room BII2 -	Fill									1							1
	Floor																
Room BII3 -	Fill				1								1				2
	Floor																
Cist B1 -	Fill																
Cist B2 -	Fill																
Cist B3 -	Fill				1	1		1		1					1		5
	Floor																
Cist B4 -	Fill					1								1	1		3
	Floor																
Cist B5 -	Fill							1									1
Cist B6 -	Fill																
Use Surface B3															1		1
Use Surface B2																	
Use Surface B1																	
Firepit B2																	
Test Trenches:																	
0-15 cm								1								1	2
15-30 cm																	
30-45 cm																	
Excavation Units:																	
Stratum B1																	
Stratum B2					1	1							1				3
Stratum B3																	
TOTALS		0	0	0	3	3	0	3	1	2	1	1	2	1	4	1	22

CERAMICS

Introduction

A relatively modest 5,521 sherds were recovered from the Red Cliffs site. Four thousand eight hundred and four were local plain gray types while 414 sherds were indigenous painted types. Only a handful of nonlocal Anasazi types were recovered and no Fremont ceramics occured in the collection. Temporally, all sherds in the sample were restricted to the early Formative Period ranging between Basketmaker III and early Pueblo II.

Rather than a rigorous analysis of the Red Cliffs material per se, the following is more on the order of a general discussion of early Virgin Branch ceramics. Particular emphasis is placed on some of the problems encountered in attempting to deal with the Red Cliffs material, as well as with Virgin pottery types in general. There are, however, specific observations pertinent to certain types represented in the Red Cliffs collection that are offered as well.

The Analysis

The original analysis of the Red Cliffs Site ceramics was undertaken by Richard A. Thompson during 1977 and 1980, in part concurrent with the ongoing excavations. Colton's (1952) classification was employed as modified by Thompson (1977) who has "simply expounded the list of Colton's terms (types) in order to make provision for design styles that did not appear in his collection." Therefore, this study introduces the types Mesquite Gray and Mesquite Black-on-gray which are considered Virgin series analogs of the Basketmaker types Lino Gray and Lino Black-on-gray found in the Tsegi series.

Thompson's analysis also departed from traditional methods by appending a variety of descriptive attributes to the standard ceramic types in order to identify varieties. Using a 10-40 power binocular microscope the presence of the attributes, vitrification, fugitive red wash, sherd temper, and basalt temper were anotated to the ceramic type. Thus, notations for a type from a field specimen provenience might read; NORTH CREEK B/G (2 sherds, 1 vitr., 3 fugitive red). This attribute notation was dropped for the actual site provenience tabulations herein. In general occurences of these attributes were rare and did not provide any particular insights. It should be noted, however, that because the presence of a fugitive red wash was considered an attribute rather than the diagnostic trait of Colton's St. George Fugitive Red, that type does not appear in the tabulations.

Thompson's identifications have generally been retained, excepting some of the painted types, and are presented in Tables 6 and 7. A word of caution, however, is in order concerning the identifications, particularly as regards the gray wares. At the time the analysis was done, Thompson was weighing technical attributes of temper, paste, and firing characteristics very heavily. Perspective gained over the intervening years, however, particularly from a large corpus of inventory data, indicates that the narrow technical view will not hold up, and form and style must be given considerable attention. This is discussed in more detail in sections to follow.

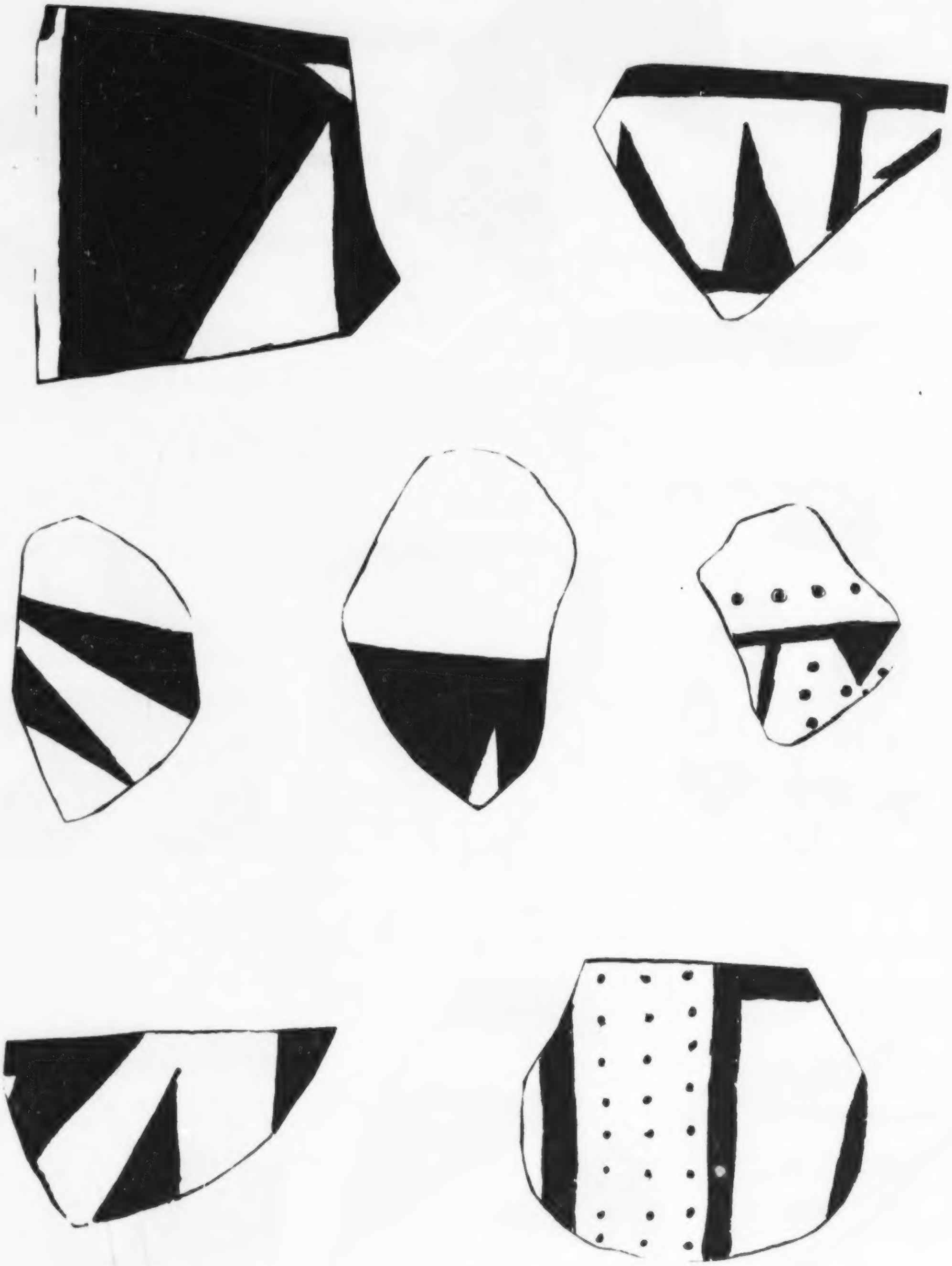

Figure 89. Painted sherds. a,b, St. George Black-on-gray; c-g, Mesquite Black-on-gray.

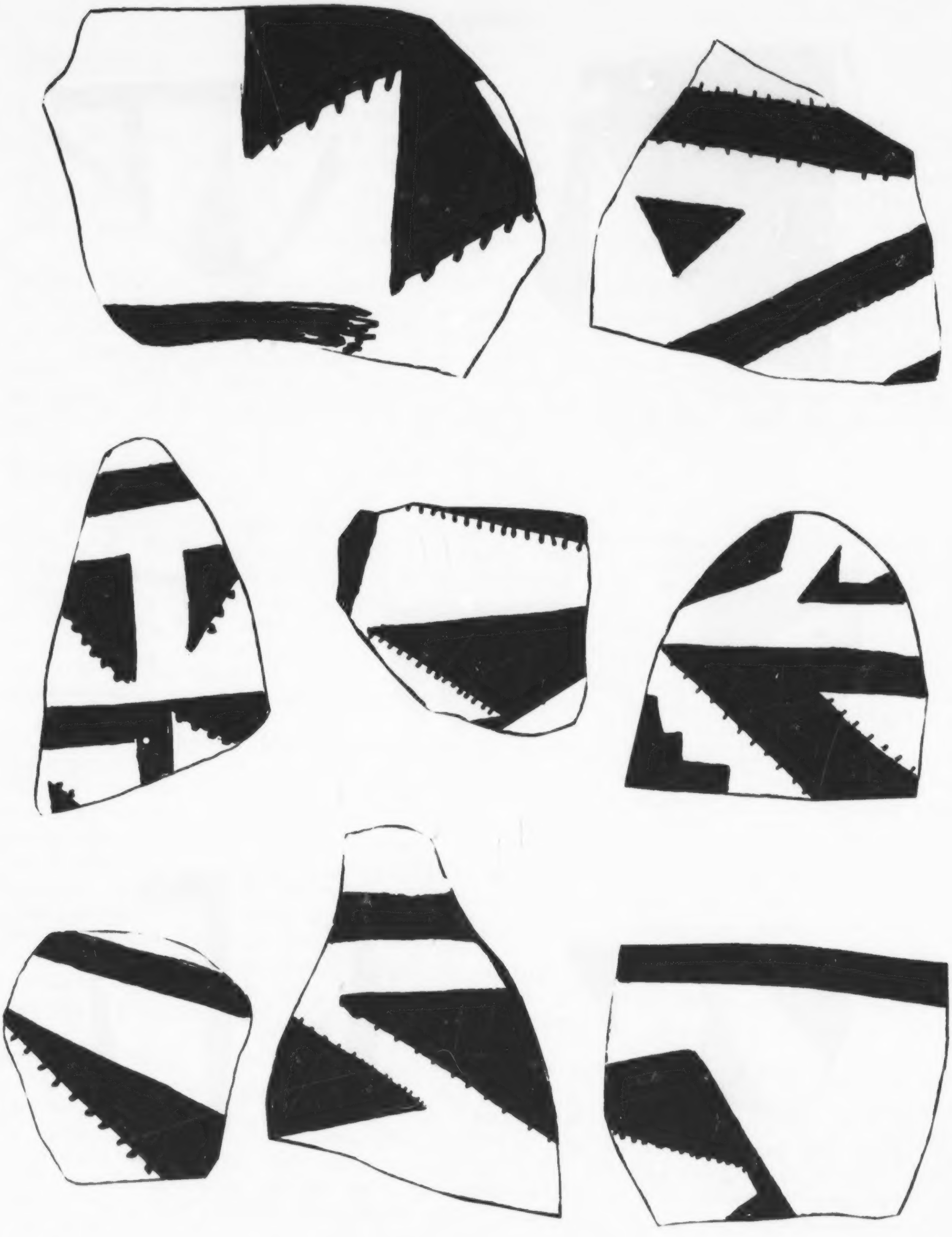

Figure 90. St. George Black-on-gray sherds.

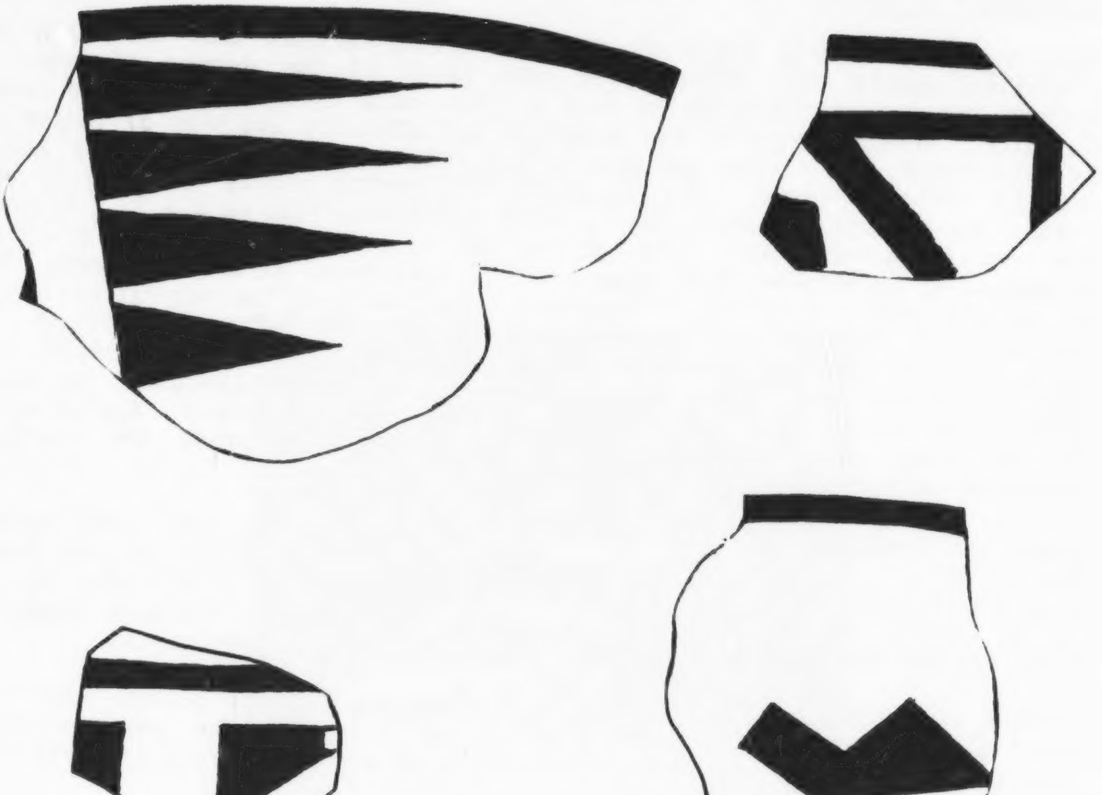

Figure 91. St. George Black-on-gray sherds.

Discussion of Types

Gray Wares - Although aware of Colton's (1952) caution that Lino Gray was indistinguishable from other plain gray types in the absence of rims, an attempt was made by Thompson to sort out the local Lino Gray analog he termed Mesquite. This segregation was based on the abundance and size of temper and certain paste and firing characteristics which produced a generally poorer quality, friable sherd. Two thousand six hundred ninety-five sherds were classified as Mesquite and 2,109 as North Creek Gray (Tables 6 & 7). Although the two types have been retained in the tabulations, for most practical purposes, it is believed they should all be considered North Creek Gray. This is because while technical differences occasionally allow separation of the two types it has not been accomplished consistently in the absence of rims which are considered.the most sensitive attribute. Of the nearly 5,000 gray ware sherds analyzed, only a few dozen rims were in the collection. Of these, consistency between rim form and type was not always achieved. Approximately 75% of those rims were the everted Pueblo II style while the remainder represent earlier forms.

Since the Thompson analysis, excavation and survey in the area seems to have demonstrated a Pueblo I plain gray type companion to Washington Black-on-gray. This is characterized by a wide-mouth jar with a flaring rim. It is similar in form to local Basketmaker III vessels although temper is finer and better sorted and it shows a consistent, light gray paste.

Shutler (1961, 28) refers to a Pueblo I plain gray type he called "Washington Gray" although he did not describe it (1961, Plate 52). For the purposes of this study, then, the "type" will be considered a Pueblo I form of North Creek Gray, not specifically identified.

The latest plain gray type and the most abundant is North Creek Gray (Figures 93-96). Originally described by Spencer, the name was retained by Colton for the "undecorated type (which) appears to be a counterpart of North Creek Black-on-gray ..." (Colton 1952, 20). Herein this type is also considered contemporary to St. George Black-on-gray and, as mentioned, also to Washington Black-on-gray. The Pueblo II rim form, however, is distinctively everted on the typical small globular jar form.

Washington Black-on-gray - This type is described by Colton (1952, 38) as having "...fine and narrow lines small or medium size solid triangles frequently with very small pendant dots (less than 1 mm in dia.) or w/short fringe-like lines." Schroeder (1955, 103) objects to this description stating that "Pendant dots or fringes are quite rare" (1955, Fig. 10a). The decoration resembles Lino Black-on-gray more than Kana-a Black-on-white (1955, 103). He questions the fine lines pictured by Colton as typical. Schroeder's description is based on a collection from ZNP-1 a "Modified Basket Maker" site exhibiting a pit house which could be either Basketmaker III or Pueblo I. Compounding this situation is the apparent gradation of these early decorative elements into the better described and dated early Pueblo II type St. George Black-on-gray.

The questions of distinctiveness between Mesquite Black-on-gray (Figure 89) and Washington Black-on-gray cannot be resolved by this study. Neither temporal controls nor actual numbers of sherds are sufficient.

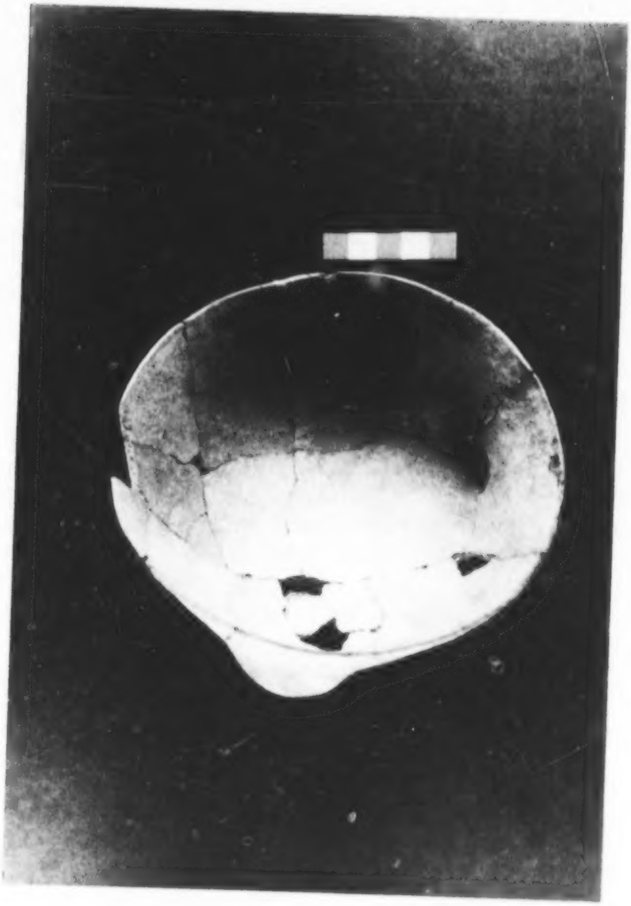

Figure 92. Mesquite or North Creek Gray bowl

TABLE 6
DISTRIBUTION OF CERAMICS: AREA A

		Mesquite Gray	North Creek Gray	Mesquite Black-on-gray	Washington Black-on-gray	St. George Black-on-gray	Unidentified Virgin Series B/G	Boulder Gray	Moapa Brown	Shinarump Brown	Kana-a Black-on-white	Unidentified Kayenta Series B/W	Unidentified	TOTALS
Room AI1 -	Fill													
	Floor													
Room AI2 -	Fill													
	Floor													
Room AI3 -	Fill	3												3
	Floor													
Room AI4 -	Fill	28	6				5						1	40
	Floor	1	14			1								16
Room AI5 -	Fill	29	5				4						1	39
	Floor													
Room AI6 -	Fill	43	15			1	4						7	70
	Floor	1												1
Room AI7 -	Fill	5					1							6
	Floor		1											1
Room AI8 -	Fill	7	26				5							38
	Floor	5												5
Room AI9 -	Fill	5	14				1							20
	Floor		7				2							9
Room AI10 -	Fill													
	Floor													
Room AI11 -	Fill	12	5		2								1	20
	Floor	1											1	2
Room AI12 -	Fill	11	6		1		4							22
	Floor		29				4							33
Room AI13 -	Fill	11	33					1						45
	Floor													
Structure A1 -	Fill	133	30			2							1	166
	Floor	29	71				1	1						102
Structure A2 -	Fill		22											22
	Floor		73		1	4								78
Midden A1:														
0-15 cm		191	74	3		4	2		1				21	296
15-30 cm		135	136	1	2	1	2		4	1	1	2	11	296
30-45 cm		167	109			1	1	3				1	5	287
45-60 cm														
Midden A2:														
0-15 cm		76	55			1	11						4	147
15-30 cm		160	54	4	1	6	5						9	239
30-45 cm		21	8				2						3	34
45-60 cm														
Test Trenches:														
0-15 cm		471	187	5	5	16	48	2			2	5	11	752
15-30 cm		191	52	1	2		16						7	269
30-45 cm		35	2	1		1	8		1				5	53
45-60 cm		4												4
Excavation Units:														
Stratum A1		36	4		1		1							42
Stratum A2		369	396	10	1	33	38					4	10	881
Stratum A2a		18	7	1										24
Stratum A4			8											8
Surface/Unknown		72	47	1			13						7	140
TOTALS		2288	1496	27	16	73	178	7	6	1	3	12	105	4210

St. George Black-on-gray - This is the most abundant painted type on the site. Described by Colton (1952) on the basis of four sherds collected by Spencer, the decorative style is said to be "in a general way similar to that found on Black Mesa Black-on-white and is early Pueblo II." At Red Cliffs wide lines and dots or fringe pendants from triangles or lines are considered typical of the earliest form (Figure 90). Also distinctive is the bilateral design layout which covers only 25% to 50% of the vessel surface. This style of minimal decoration, no doubt, significantly reduces the number of sherds identified as St. George on the earlier sites. The style seems to be followed in time by a decrease in the pendant dots and lines (Figure 91) posing some potential confusion with the later Sosi style - at least on small sherds.

While the analog of St. George Black-on-gray (Virgin Series) with the Black Mesa type (Kayenta Series) appears generally to be valid, it is thought the question of temporal equivalency, particularly on the early end should remain open. Ambler (1985, 60) would place the beginning of typical Black Mesa Black-on-white at 1,000 A.D., although he acknowledges the difficulty in separating it from the transitional type Wepo Black-on-white (Gummerman, et al. 1972). Wepo bridges the gap between Kana-a Black-on-white and Black Mesa. Ambler tentatively dates the type between 930 AD and 1050 AD. The best and most numerous Red Cliffs examples of St. George Black-on-gray (Figures 97 and 98) are taken from the fill and floor of Room B11. These bowls were associated with several typical early Pueblo II North Creek Gray jars and a C^{14} date of ca. A.D. 830 ± 50.

Conclusions

The Red Cliffs ceramic assemblage demonstrates a high degree of internal consistency and shows little indication of significant external influences. Intra-regional intrusives include 14 sherds of olivine tempered Moapa Gray Ware. These types are common in the lower Virgin River drainage and Toroweap area of the Arizona Strip. Shinarump Gray Ware occurs with even less frequency (1 sherd). This ware is, in fact, quite restricted in Utah, occurring in significant numbers only east of Kanab.

Neither are inter-regional intrusives common. Only 17 sherds were identified as Kayenta Series Whiteware. These sherds showed fine tempered light gray or white paste and were occasionally slipped. Three sherds were typed as Kana-a Black-on-white, a Pueblo I diagnostic.

Although a sound terminal date for Red Cliffs is not at hand, an interpretation based on architectural evidence and the total absence of red wares, corrugated types or Sosi and Dogoszhi design styles places the site within the "Early Pueblo II" period defined above. It is noted that all of these late types occur during the early PII stage in the Northern Kayenta Area described by Ambler (1985) as Black Mesa Phase (1010-1090 AD). While there is some basis for accepting the mid-800's C^{14} data as terminal at Red Cliffs, C^{14} dates from elsewhere in the region (Kanab Site - Nickens, 1981) tend to indicate that these types may not have been in use until sometime during the late eleventh century, thus Red Cliffs could have been occupied as late as 1070 A.D. without displaying the late ceramic types common to the so called

TABLE 7
DISTRIBUTION OF CERAMICS: AREA B

		Mesquite Gray	North Creek Gray	Mesquite Black-on-gray	Washington Black-on-gray	St. George Black-on-gray	Unidentified Virgin Series B/G	Boulder Gray	Moapa Brown	Shinarump Brown	Kana-a Black-on-white	Unidentified Kayenta Series B/W	Unidentified	TOTALS
Room BI1 -	Fill	6	239			3								248
	Floor	1	46			13								60
Room BI2 -	Fill	5	6			3								14
	Floor													
Room BI3 -	Fill	16			1	1	1							19
	Floor													
Room BI4 -	Fill	1	19			2								22
	Floor													
Room BII1 -	Fill	15	3			1	3							22
	Floor													
Room BII2 -	Fill	15	2			2	9							28
	Floor													
Room BII3 -	Fill	18	9	3	2	2	10					1	1	46
	Floor	3				1								4
Cist B1 -	Fill	5												5
Cist B2 -	Fill													
Cist B3 -	Fill	123	10											133
	Floor													
Cist B4 -	Fill	38	6				4		1				2	51
	Floor													
Cist B5 -	Fill	18	4				9							31
Cist B6 -	Fill	2					1							3
Use Surface B3		15	144	2		7	13							181
Use Surface B2		2	56				4							62
Use Surface B1			11											11
Firepit B2		4												4
Trenches:														
0-15 cm		71	2	1		11								85
15-30 cm		33	3			1							4	41
30-45 cm														
Excavation Units:														
Stratum B1														
Stratum B2		108	100			5	21						7	241
Stratum B3														
TOTALS		499	660	5	4	40	87	0	1	0	0	1	14	1311

TABLE 8
RESTORED CERAMIC VESSELS

Type	Provenience	Description	Figure
1. Plain Gray Mesquite or North Creek	Cist B3 Fill	Small, deep bowl with opposing protrusions Max. dia.: 14 cm. Depth: 7 cm.	Fig. 92
2. North Creek Gray	Room BI1 Fill/ Floor Contact	Globular Jar Max. dia.: 28 cm. Height: 27 cm. Opening: 16 cm.	Fig. 93
3. North Creek Gray	Room BI1 Fill	Globular Jar Max. dia.: 25cm Height: 25 cm. Opening: 15 cm.	Fig. 94
4. North Creek Gray	Room BI1 Fill/ Floor Contact	Globular Jar Max. dia.: 29cm Height: 31 cm. Opening: 17 cm.	Fig. 95
5. North Creek Gray	Room BI1 Fill and Stratum B2 Outside Room	Partial Jar Max. dia.: ca. 30 cm. Height: ca. 35 cm.	None
6. North Creek Gray	Room BI1 Fill/ Floor Contact	Partial Jar Max. dia.: ca. 25 cm. Height: ca. 25 cm.	None
7. North Creek Gray	Room BI1 Fill/ Floor Contact	Narrow-neck olla Max. dia.: ca. 34 cm. Height: ca. 39 cm. Opening: 10 cm.	Fig. 96
8. St. George B/G	Room BI1 Fill/ Floor contact	Partial bowl with bilateral design layout Max. dia.: ca. 16 cm. Depth: ca. 8 cm. Fugitive red wash.	None
9. St. George B/G	Room BI1 Fill/ Floor and Stratum outside Room B2	Bowl with bilateral design layout Max. dia.: 25 cm. Depth: 9 cm. Fugitive red wash.	Fig. 97
10. St. George B/G	Room BI1 Fill and Floor Contact	Bowl with bilateral design layout Max. dia.: 24 cm. Depth: 10 cm.	Fig. 98

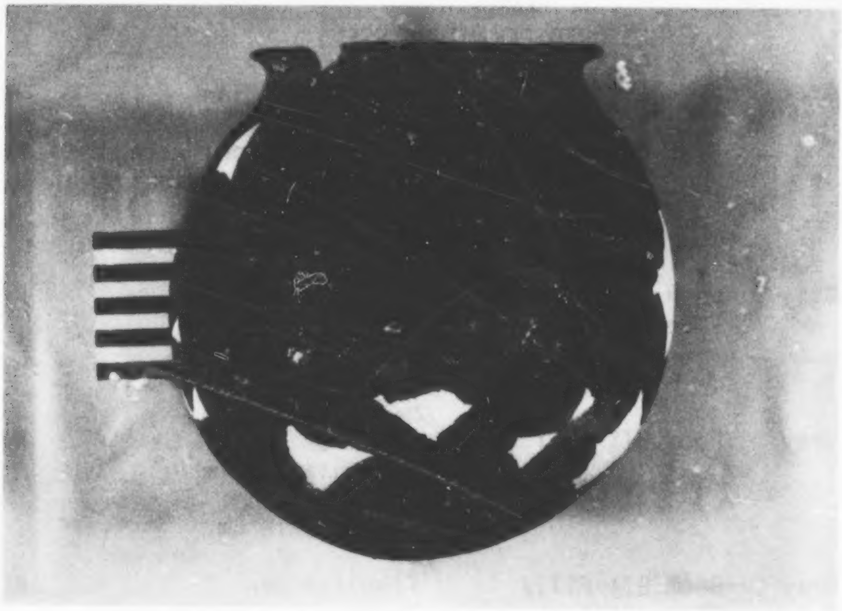

Figure 93. North Creek Gray jar

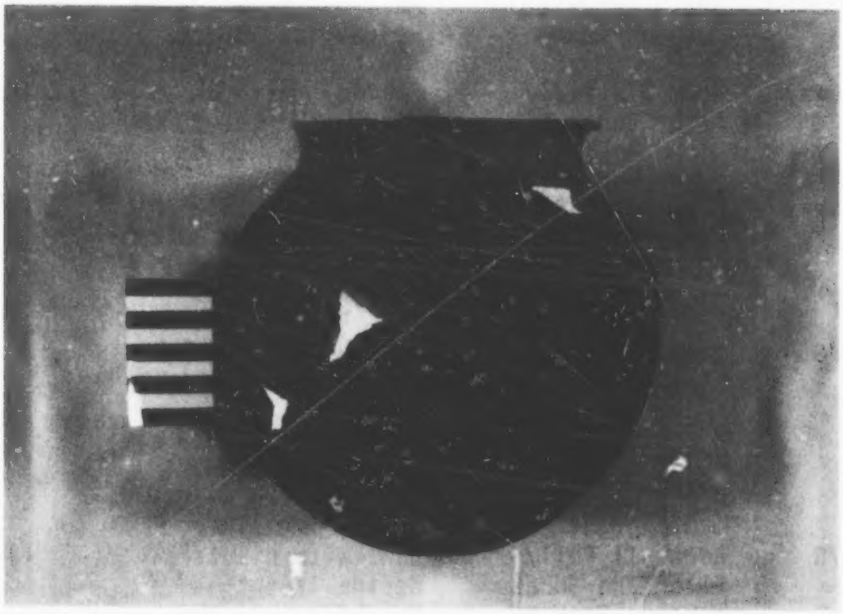

Figure 94. North Creek Gray jar.

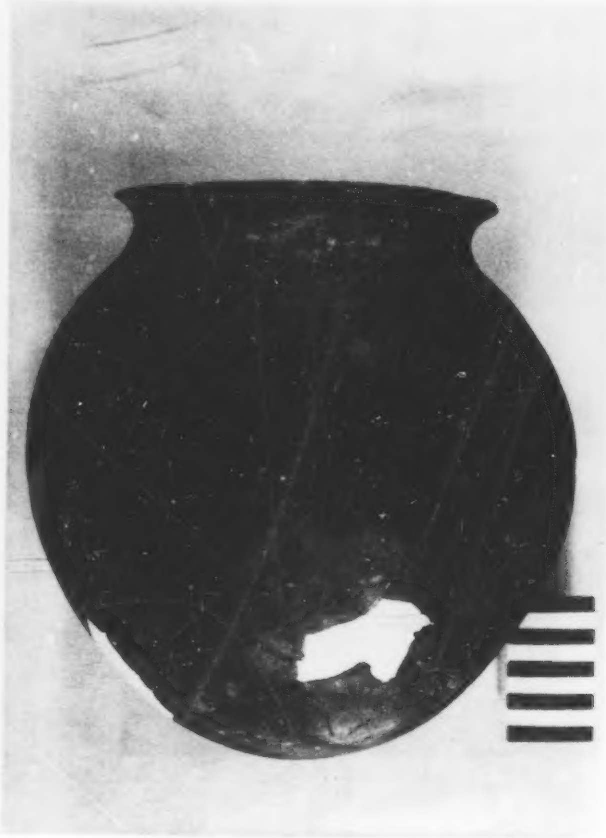

Figure 95. North Creek Gray Jar.

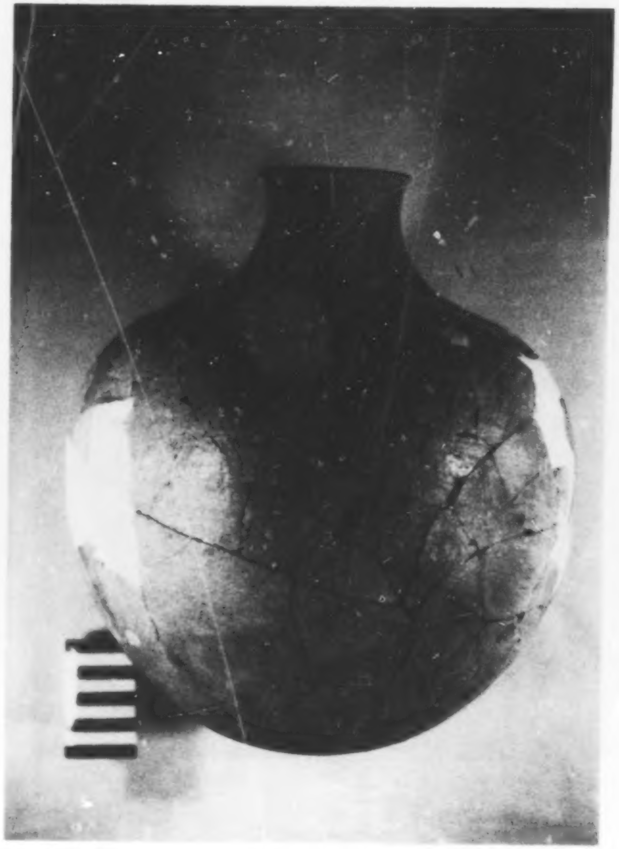

Figure 96. Large, narrow-neck olla.
North Creek Gray.

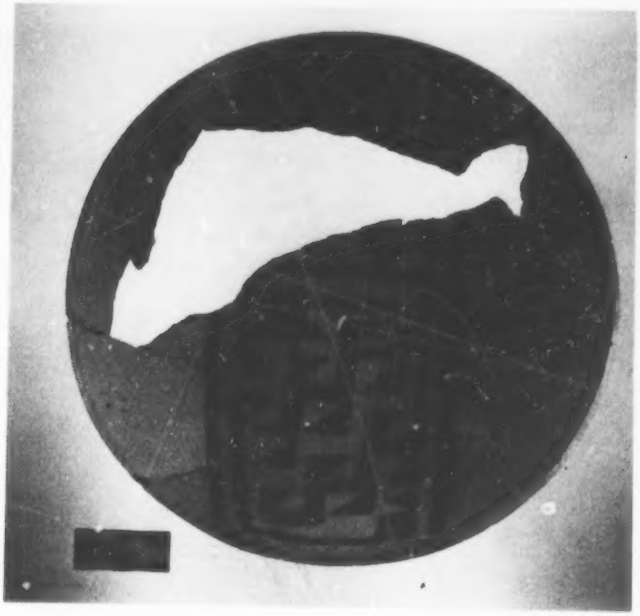

Figure 97. St. George Black-on-gray bowl.

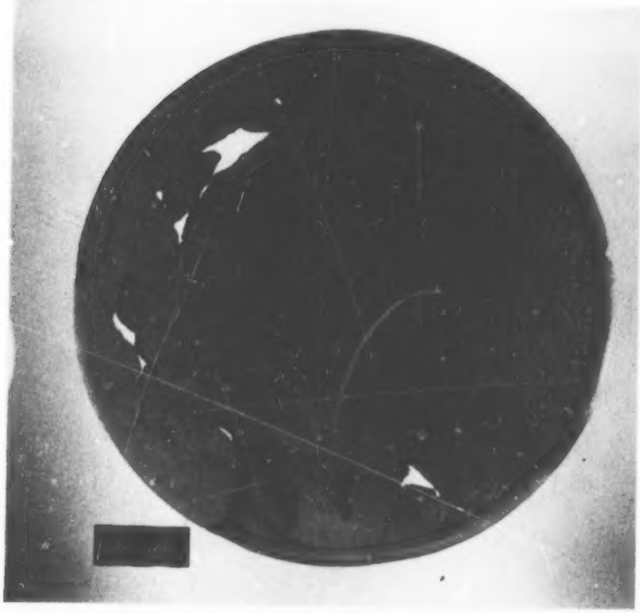

Figure 98. St. George Black-on-gray bowl.

the early Pueblo II stage (Black Mesa Phase -A.D. 1010-1090) in the Northern Kayenta Area (Ambler 1985). While there is some basis for accepting the mid-800's C-14 date as terminal evidence, elsewhere in the region C-14 dates (Kanab Site - Nickens, 1981) tend to indicate that these types may not have showed up until sometime during the late eleventh century.

Breternitz (1982) offers an A.D. 950 plus date as the beginning of strong Pueblo II ceramic influence in the region. Obviously much remains to be learned about this critical juncture both in terms of understanding the local prehistoric sequence as well as the processes of interaction between the Virgin and Kayenta culture areas.

Miscellaneous Remains

Included here are brief sections on the very small samples of bone, both artifacts and unmodified pieces, shell, and botanical remains obtained from the site. Also presented are the various odds and ends of stone and mineral that are not easily included elsewhere, and may represent only oddments and curiosities brought to the site for one reason or another.

Bone Artifacts

Only two specimens are in the collection. One is the tip section of an awl showing gradual taper over about 8.0 cm. of smoothed margin. The tip per se is still quite sharp; above the tapered portion, however, remnant bone is badly eroded and deteriorated.

The second specimen (Fig. 99a), eroded, but in surprisingly good shape for a rather fragile artifact, is an extensively modified section of dense ungulate long bone showing parallel margins and a thin, regular cross-section. The entire 1.2 cm. width of one end is gently beveled from both faces to produce a thin, spatulate-like apparent working portion; the opposite end may be slightly rounded or may simply be eroded. Total length is 11.8 cm., width is ca. 1.1 cm. thickness is ca. 0.4 cm.

Unmodified Bone and Horn

Only two pieces appear to retain sufficient articular surface and other characteristics to be identifiable; they have not, however, been specifically identified. One appears to be a section of a horn core, probably from a mountain sheep; the other is a small ulna.

The balance of the material is split, broken, and generally eroded or deteriorated. Of a total 66 pieces that are more than just slivers, most appear to be from dense ungulate bones but a few are probably rodent.

Shell

Three segments of heavy, dense marine shell were recovered. While not specifically identified, these are similar to material from the Kanab Site (Nickens and Kvamme 1981, 57 and Figure 35) and are probably Glycymeris.

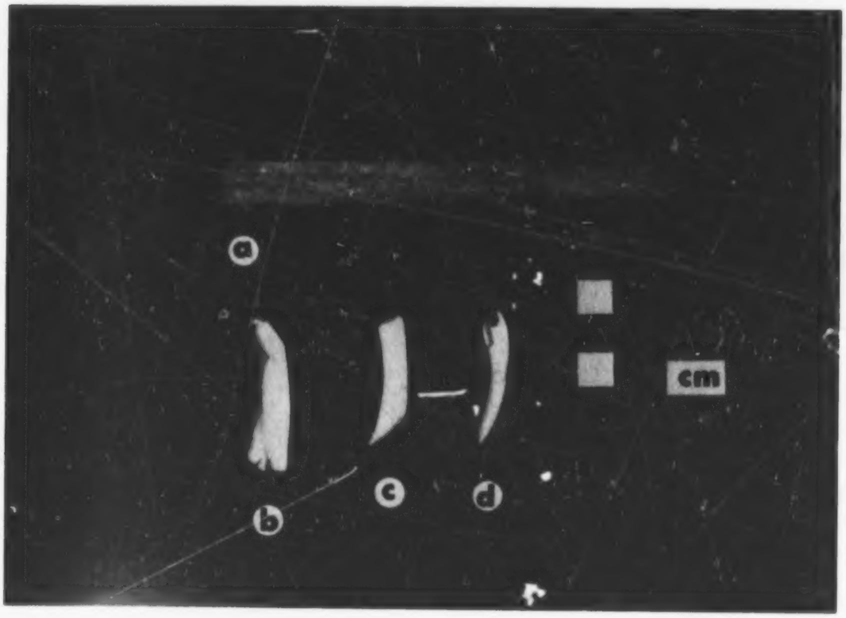

Figure 99. Bone and shell artifacts. a, bone tool; b-d, fragments of shell artifacts.

All three pieces show extensive work and modification, but only one (Fig. 99d) is obvious as to artifact type. This is a 3.5 cm. long curved piece, drawn to a point at one end and flattened somewhat at the other to accommodate a suspension hole, which has worn through.

A slightly larger, heavier piece (Fig. 99b) shows a particularly encircling groove cut about 0.3 cm. from one end. A cross-section of the piece is nearly square, and the end opposite the grooved end is appreciably the larger, but only roughly smoothed.

The third piece, just slightly heavier than the first, is smooth and polished, but shows no other modification (Fig. 99c). One end is a raw break, the other is minimally smoothed.

Corn

Three carbonized and barely discernible kernels were recovered from a break in the floor of Room BII3 (Fig. 59) where a stone or two had been removed.

Miscellaneous Stone and Mineral

Included in this more or less residual grouping are nine sandstone concentrations of various shapes; one piece of a bivalve shell; a rounded azurite concretion; five small, highly polished pebbles; five chips of sandstone with mineral stain, no doubt from the local silver deposits; and a rather large, 15.0 cm. long piece of calcite with a diamond-shaped cross-section (2.7 by 3.4 cm.) and one pointed and one beveled end. This looks like a purposeful artifact, but shows no sign of shaping and is quite soft.

TABLE 9
MISCELLANEOUS REMAINS

	Bone Anvil	Bone Weaving Tool	Unmodified Bone	Unmodified Horn	Shell	Corn	Misc. Concretions	Misc. Stain	Misc. Pebbles	Misc. Calcite Objects	TOTALS
AREA A											
Room AI3 - Fill							1			1	2
Room AI7 - Fill					1						1
Room AI12 - Fill		1									1
Structure AI - Fill			1								1
Structure A2 - Fill			6								6
Midden A1:											
0-15 cm							1				1
30-45 cm			6					1			7
Midden A2:											
15-30 cm			4								4
Test Trench:											
0-15 cm			5				1				6
15-30 cm			1								1
Excavation Units:											
Stratum A2			1				2		2		5
AREA B											
Room BI3 - Fill	1		3								4
Room BII1 - Fill							1				1
Room BII3 - Fill			17	1	2						20
Floor-Break						3					3
Cist B1 - Fill			1								1
Cist B3 - Fill			11				1	4	1		17
Use Surface B3			1				1				2
Surface/Unknown			9				1		2		12
TOTALS	1	1	66	1	3	3	9	5	5	1	95

SUMMARY

The primary intent of the foregoing sections has been to provide a sound descriptive reporting of the excavation of the what appears to be a rather important, and certainly a very interesting Virgin Anasazi site. The site has been established as beginning rather early in a proposed Virgin sequence, but also reflected is occupation well into the middle reaches of that sequence. A discontinuous occupation is postulated for the period involved, but this assumption is based mainly on subjective evidence and is open to further interpretations. No reason is given for eventual abandonment of the site as not a shred of evidence can be brought to bear on the subject. People do move on, however, and it does not necessarily require reference to fire, flood or famine to account for such happenings.

Considerable attention has been given to the environment of the St. George Basin area. It has been noted as harsh and extreme in some respects, such as heat and aridity, but mitigated by others factors, such as availability of live water and a potentially rich or at least quite diverse resource base. It has been indicated that there is no possible way to practice agriculture in the area without ready access to live water. For the prehistoric populations, this is confirmed by the placement of Anasazi habitation sites. They are located close along the perennial water courses and essentially nowhere else. Exactly how the water was utilized, however, has not been addressed due to lack of direct evidence. In all probability, any vestiges of water control arrangements, if such were used, have been lost to floods or historic activities.

Seen as quite striking in terms of Virgin Anasazi agricultural practices (as well as other cultural practices and processes) is the local propinquity of a riverine adaptation, as reflected by the Red Cliffs Site, and an uplands adaptation, as specifically reflected by sites on Little Creek Mountain. In the first instance, access to live water is obviously crucial, in the second it is apparently incidental as there is little to be had. As reflected by large inventory efforts, both areas were supporting large populations, both show full and similar sequences (save perhaps a lack of Basketmaker in the basin), and both areas show similar sites and cultural materials. The two areas, however, are only separated by about six miles and 2000 vertical feet.

Mainly the Little Creek - Virgin River issue is raised as an area needing inquiry, not because answers were abstracted from the Red Cliffs data. In large measure, it is hoped that this report and summation will accomplish the task of stimulating new or renewed interest in the area. As reflected in a previous section, the data base has grown substantially in the past few years and there is certainly room for fresh views and insights.

From the Red Cliffs data, considerable prehistoric use of certain locally abundant, but non-biotic resources has been demonstrated. Not demonstrated was any appreciable use of what was documented in the sections on environment as a highly diverse and sometimes abundant biotic resource. Some potential data simply was not extracted from the site, but it still seems the general case that the riverine people were not exploiting wild plant or animal resources to any particular extent. This seems somewhat incongruous with a view of a people operating in a marginal agricultural situation, and offers another avenue of inquiring.

Extensive use of the local non-biotics brings to mind another question that can be abstracted from the Red Cliffs material. This in light of a very noticeable dearth of obviously imported or exotic cultural items. That is, are we dealing here with people who are so far in the cultural backwaters that they have no access to such items, or are they in a situation of such self-sufficiency that they neither need nor want any? About the same question can be posed to the quite apparent cultural stability, continuity or quiescence believed seen in the early portion of the Virgin sequence. There just does not seem to be much outside influence, at least immediately and directly affecting the cultural flow.

Dating of the Red Cliffs site per se is unfortunately totally symptomatic of the dating of the Virgin area in general. There are accumulating enough C-14 determinations that some internal work can be done. Little can be done, however, in the realm of working with interaction with adjacent Anasazi areas, particularly as it becomes more apparent that the early (into Pueblo II, at least) ceramics will not cross-date as closely as once thought. Researchers in the Virgin area have for years been crying for a just few C-14 determinations; now it is time to start looking to the potential for tying into a tree-ring sequence.

An attempt has been made in a section above to roughly sketch in a system of phases thought applicable to at least portions of the Virgin area. This was purposefully not fleshed-out as far as the authors believe could be supported by data presently available. Such an undertaking was seen as beyond the scope and intent of this volume and there is serious intent in the area for a thorough going review and reanalysis. Something had to be presented, however, to indicate the trend of the authors' thinking and establish a base for communication.

Excepting poor dating control, Red Cliffs was an excellent site for presenting the Early PII phase concept. Both the ceramics and the architecture reflect the proposed period very nicely. And, the ceramics in particular highlight the pitfalls of attempting to date or order Virgin manifestations by reference to Kayenta analogs. It was not the site, however, for presenting either the Basketmaker III or Pueblo I period. It was finally decided that the best pigeonhole for placing the early Red Cliffs manifestation was with Pueblo I, but there is really not a great deal to support this. Interested readers may have to go on faith for awhile regarding substantive demonstration of the proposed Virgin Basketmaker III and Pueblo I periods.

Site architecture has been described at some length in the body of the report. Found rather fascinating are the storage rooms and storage cists. Abstracted from the site and emphasized in the descriptive sections were the obvious care and detail in constructing and sealing the rooms; the accretional nature of the room blocks; the evidence for patching, rebuilding, reflooring; both reuse and apparent avoidance of earlier structures by later people; the attached but separate nature of the rooms in the blocks; and the complicated occupational sequence that can be presented by one of the blocks (Room Block A1). Also demonstrated is the rather nice evolution of cist to storage room, and vague alignment to contiguous alignments.

To close in a more general but still consistent frame, the Virgin area is again offered as an area of exceptional opportunity for the study of the development and interaction of Formative cultures. There is a large resource, there is a substantial Archaic base, there are well-known neighbors, and there are Paiutes to be dealt with somewhere along the line. It seems almost incredible that there would still be in existence a major Anasazi area that has seen so little work and holds so many research opportunities.

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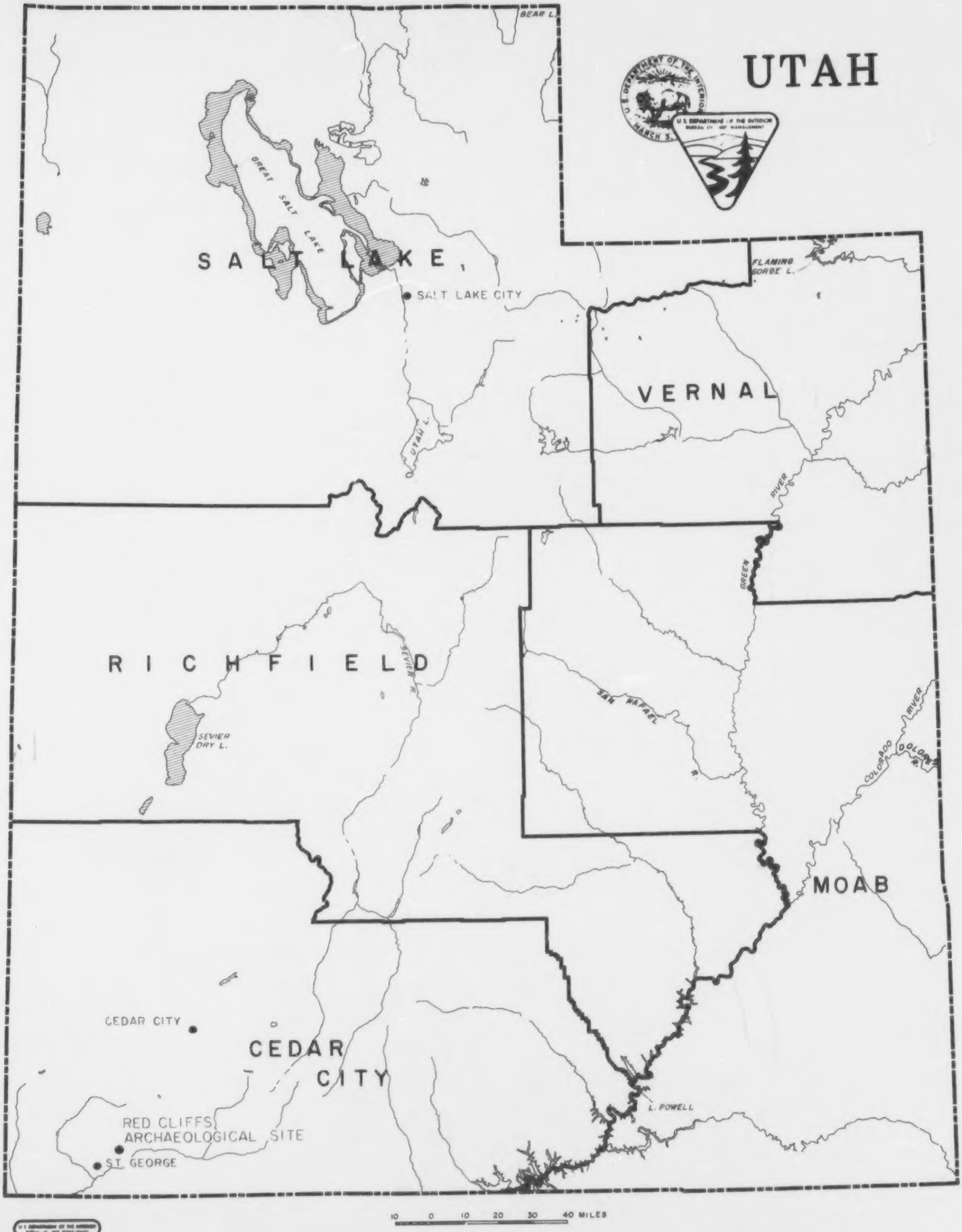

UTAH

BEAR L.
GREAT SALT LAKE
SALT LAKE
SALT LAKE CITY
UTAH L.
FLAMING GORGE L.
VERNAL
GREEN RIVER
RICHFIELD
SEVIER R.
SEVIER DRY L.
SAN RAFAEL R.
COLORADO RIVER
DOLORES R.
MOAB
CEDAR CITY
CEDAR CITY
L. POWELL
RED CLIFFS ARCHAEOLOGICAL SITE
ST. GEORGE
10 0 10 20 30 40 MILES